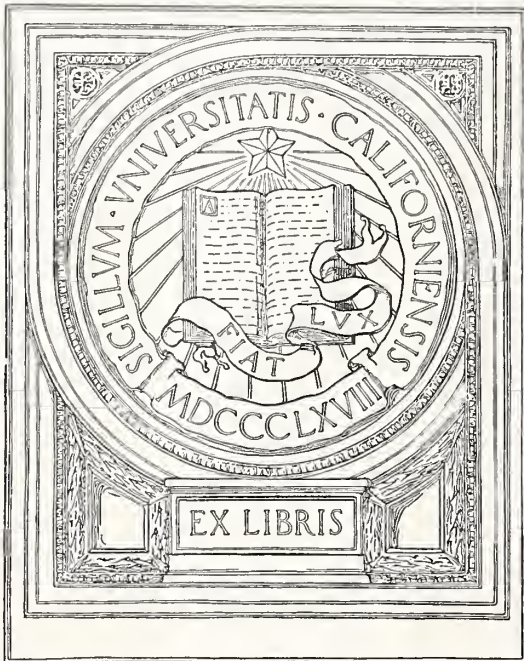




MEDICAL SCHOOL  
LIBRARY



EX LIBRIS









Digitized by the Internet Archive  
in 2016

<https://archive.org/details/neworleansmedica92unse>

NEW ORLEANS  
MEDICAL AND SURGICAL  
JOURNAL



VOLUME NINETY-TWO



JULY, 1939  
through  
JUNE, 1940

UNIVERSITY OF MICHIGAN  
MEDICAL LIBRARY

NEW ORLEANS  
Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society  
under the jurisdiction of the following named  
Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Chairman.  
William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.,  
Vice-chairman

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*  
Willard R. Wirth, M. D.....*Editor*  
Edwin L. Zander, M. D.....*Associate Editor*

COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.  
Daniel N. Silverman, M. D.  
C. C. deGravelles, M. D.  
M. D. Hargrove, M. D.  
J. B. Vaughan, M. D.\*  
Rhett McMahan, M. D.  
C. A. Martin, M. D.  
W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*  
1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in ad-  
vance, postage paid, for the United States; \$3.50  
per year for all foreign countries belonging to the  
Postal Union.*

*News material for publication should be received  
not later than the twentieth of the month preced-  
ing publication. Orders for reprints must be sent  
in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for  
statements made by any contributor.*

*Manuscripts should be addressed to the Editor,  
1430 Tulane Avenue, New Orleans, La.*

\*Died April 14, 1940.



## INDEX TO VOLUME NINETY-TWO

July, 1939—June, 1940

## —A—

Abscess, acute epidural, of spinal canal; case reports, by Dr. Dean H. Echols.....	682
acute spinal epidural, by Dr. J. O. Weilbaecher, Jr.....	208
Acidosis and coma, diabetic, management in general hospital, by Dr. H. J. Frachtman.....	143
Adam, Alfred L.—Preliminary report on presumptive sign of syphilis.....	30
Public health aspects of syphilitic patient.....	322
Allredge, Rufus H.—Fractures of upper end of humerus treated by early relaxed motion and massage, (Allredge, Knight).....	519
Allergic patient, diagnostic survey of, by Dr. Nicholas K. Edrington.....	125
Aminophyllin, theophylline ethylenediamine, in bronchial asthma, by Dr. B. G. Efron and Dr. Peter Everett .....	77
Ané, J. N.—Irradiation therapy in endocrine dysfunction, (Ané, Menville).....	433
Anesthesia, spinal, present status of, by Dr. Lucy S. Hill.....	159
Aneurysm of splenic artery, by Dr. Joseph G. Pasternack and Dr. James R. Shaw.....	94
Angina pectoris and coronary thrombosis, by Dr. Willard R. Wirth.....	671
Antommarchi, Francesco, (1780-1838), by Robert Glenk .....	701
Appendicitis, Committee, Surgical Section of Southern Medical Association, aims of, by Dr. Isidore Cohn .....	489
management of patient with possible, by Dr. Samuel Karlin.....	494
use of anatomicophysilogic incision in, by Dr. Henson S. Coon.....	135
acute, age factors in, by Dr. C. J. Miangolarra .....	496
diagnosis of, by Dr. H. Reichard Kahle.....	490
Asthma and intestinal toxemia, relation of histaminase to, by Dr. Allan Eustis.....	349
bronchial, diagnosis and treatment of, by Dr. Nicholas K. Edrington.....	32
use of theophylline and ethylenediamine (aminophyllin) in, by Dr. B. G. Efron and Dr. Peter Everett.....	77

## —B—

Barber, D. B.—President's address.....	607
Beard, Howard H.—Plasma proteins, methods of determination and clinical significance.....	678
Bass, Dr. Charles C., an appreciation, by Dr. Rudolph Matas .....	545
Bodenheimer, J. M.—Abdominal pregnancy, report of case .....	454
Bone, malar, and zygoma, fractures of, with eye, ear, nose and throat complications.....	90
Book reviews .....	58, 110, 167, 229, 285, 347, 409, 485, 540, 602, 662, 728
Boyce, Frederick F.—Mortality of thyroid disease in non-endemic area.....	254
Breech, delivery of, by Dr. George A. Mayer.....	572
Brooks, Clyde—Toxic effects of sulfanilamide and sulfapyridine .....	115
Browne, Donovan C.—Gastroscopy in surgery.....	558
Browning, W. H.—Undulant fever, (Browning, Shavin) .....	81
Burch, George E.—Etiology and abnormal physiology of scleroderma.....	12

## —C—

Calculi, ureteral, by Dr. Joseph A. LaNasa.....	44
Caldwell, Guy A.—Physiotherapy in simple fractures intersecting joints.....	352
Campagna, Maurice—Peptic ulcers in negro.....	366
Cancer, cervix, treatment of, by Dr. Manuel Garcia .....	652
present concept of, by Dr. James T. Nix.....	65

Carcinoma of rectum, by Dr. Warren H. Hébert.....	551
uterus, by Dr. James C. Masson.....	235
Carmouche, Ernest N.—Metrazol therapy in psychotic excitements, (Carmouche, Phillips, Duncan) .....	67
Cataract, by Dr. George M. Haik.....	195
Cerebral vascular accidents, acute spontaneous, in adults, by Dr. Louis K. Levy.....	683
Cervix, treatment of cancer of, by Dr. Manuel Garcia .....	652
Cervicitis, Vincent's, by Dr. James P. Quindlen and Dr. Leon Taubenhau.....	692
Chaillé, Stanford Emerson, memorial address, by Dr. Waldemar R. Metz.....	413
Children, diagnosis and treatment of urinary infections in, by Dr. J. D. Youman.....	425
Choriomeningitis, acute lymphocytic, by Dr. Carlo J. Tripoli and Dr. David E. Fader.....	308
Cohn, Isidore—Aims of Appendicitis Committee, Surgical Section of Southern Medical Association .....	489
Cole, C. Grenes—Inaugural address.....	665
Contagious diseases in childhood, common, convalescent serum in prevention and treatment of, by Dr. R. T. Lucas.....	289
Coon, Henson S.—Use of anatomicophysiologic incision in appendicitis.....	135
Copland, Sidney M.—Peritendinitis calcarea, (Copland, Michel) .....	261
Coronary thrombosis, and angina pectoris, by Dr. Willard R. Wirth.....	671
Cor pulmonale, by Dr. B. R. Heninger.....	508
Couvillon, S. J.—Memorial address, Louisiana State Medical Society.....	1

## —D—

Dalton, Orien E.—(Joint author), see Dauterive, Henry J.....	302
Dauterive, Henry J.—Danger of ecbolics, with report of case of cinchonism, (Dauterive, Dalton) .....	302
Davis, J. Preston—Symptoms, diagnosis and treatment of pellagra, with special reference to use of nicotinic acid.....	315
DeBakey, Michael E.—(Joint author), see Ochsner, Alton .....	24
(Joint author), see Odom, Charles B.....	359
Delivery of the breech, by Dr. George A. Mayer.....	572
Diabetes, diagnosis and treatment of, by Dr. Manuel Gardberg .....	137
Digestion, gastric, effect on allergic power of pollen, by Dr. Narcisse Thiberge.....	430
Duncan, Dean H.—(Joint author), see Carmouche, Ernest N.....	67

## —E—

Eccholics, danger of; with report of case of cinchonism, by Dr. Henry J. Dauterive and Dr. Orien E. Dalton.....	302
Echols, Dean H.—Trigeminal neuralgia.....	87
Acute epidural abscess of spinal canal, case reports.....	682
Editorials .....	41, 99, 152, 216, 271, 328, 391, 457, 525, 581, 646, 707
Edrington, Nicholas K.—Diagnosis and treatment of bronchial asthma.....	32
Diagnostic survey of allergic patient.....	125
Efron, B. G.—Theophylline ethylenediamine (aminophyllin) in bronchial asthma, (Efron, Everett) .....	77
Emotional factors in disease, by Dr. T. A. Watters.....	118
Empyema, treatment of, by Dr. Rawley M. Penick, Jr. ....	185
Endocrine dysfunction, irradiation therapy in, by Dr. J. N. Ané and Dr. Leon J. Menville.....	433
Endometrial changes and their relation to ovarian dysfunction, by Dr. J. R. Kriz and Dr. H. J. Schattenberg.....	514

Eustis, Allan—Relation of histaminase to intestinal toxemia and asthma.....	349
Everett, Peter—(Joint author), see Efron, B. G.....	77
Eye and its care, by Dr. Leon F. Gray.....	131

## —F—

Fader, David E.—(Joint author), see Tripoli, Carlo J.....	308
Femur, osteomyelitis of upper end, by Dr. Walter Moss .....	569
Fever, undulant, by Dr. W. H. Browning and Dr. J. S. Shavin.....	81
therapy and sulfanilamide in treatment of venereal lymphogranuloma, by Dr. J. A. Trautman and Dr. H. A. Thomason.....	441
Frachtman, H. J.—Management of diabetic acidosis and diabetic coma in general hospital.....	143
Fracture, pathologic, of rib, by Dr. Antonio Mayoral .....	39
Fractures, more common, of bones of hand, by Dr. Albert A. Tisdale.....	356
of malar bone and zygoma with eye, ear, nose and throat complications, by Dr. Monte F. Meyer .....	90
of upper end of humerus treated by early relaxed motion and massage, by Dr. Rufus H. Alldredge and Dr. Marvin P. Knight .....	519
simple, intersecting joints; physiotherapy in, by Dr. Guy A. Caldwell.....	352
Friedrichs, Andrew V.—Pathology of lobar pneumonia .....	612

## —G—

Gallbladder, torsion of, by Dr. H. Reichard Kahle.....	37
Garcia, Manuel—Treatment of cancer of cervix.....	652
Gardberg, Manuel—Diagnosis and treatment of diabetes .....	137
Gastric digestion, effect on allergic power of pollen, by Dr. Narcisse Thiberge.....	430
Gaudet, J. A.—Serodiagnosis of syphilis with further tabulations of results obtained by Wassermann and Laughlen reactions.....	274
Gastroscopy in surgery, by Dr. Donovan C. Browne .....	558
Glenk, Robert—Francesco Antommarchi (1780-1838) .....	701
Gorman, C. E.—Intestinal intubation by use of Miller-Abbott tube .....	395
Gout, diagnosis of, by Dr. Morgan W. Matthews.....	624
Gray, C. P.—Extra-uterine pregnancy, (Gray, Gray) .....	171
Gray, C. P., Jr.—(Joint author), see Gray, C. P.....	171
Gray, Leon F.—Eye and its care.....	131

## —H—

Haik, George M.—Cataract.....	195
Hand, more common fractures of bones of, by Dr. Albert A. Tisdale.....	356
Hargrove, U. S.—Management of urinary infections in pregnancy.....	176
Harrison, Roy B.—Interstate endorsement.....	609
Harwell, W. R.—Radium treatment of hemangiomata .....	576
Hatchette, Stakely—Radiology versus pseudo-radiology .....	295
Hauser, G. H.—Schistosomiasis .....	265
Head, Claude D., Jr.—Pneumococcus pneumonia, treatment with type specific serum.....	73
Heard, Joseph E.—Some problems in surgical treatment of thyroid disease.....	190
Hébert, Warren H.—Carcinoma of rectum.....	551
Hemangiomata, radium treatment of, by Dr. W. R. Harwell .....	576
Heninger, B. R.—Cor pulmonale.....	508
Hepatitis, etiology, diagnosis and treatment of, by Dr. Sidney A. Portis.....	415
Hill, Lucy S.—Present status of spinal anesthesia.....	159
Histaminase, relation to intestinal toxemia and asthma, by Dr. Allan Eustis.....	349

Holbrook, C. S.—Mistakes commonly made in treatment of syphilis of nervous system.....	498
Effects of war on mental health.....	681
Hospital staff transactions and clinical meetings....	44, 101, 155, 218, 273, 330, 394, 460, 528, 584, 648, 710
Hotel Dieu staff meetings.....	584, 649
Howles, James K.—Dermatologic aspects of scleroderma .....	6
Hull, Edgar—Value of early diagnosis in pulmonary tuberculosis .....	249
Humerus, fractures of upper end, treated by early relaxed motion and massage, by Dr. Rufus H. Alldredge and Dr. Marvin P. Knight.....	519
Hutchinson Memorial Clinic of the Tulane University School of Medicine staff meetings .....	45, 101, 155, 219, 275, 332, 461, 528, 586, 714
Hyperpyrexia, by Dr. J. A. Trautman.....	630
Hypertension, concepts of treatment of, by Dr. I. L. Robbins .....	375
differential diagnosis of essential (primary arteriolar) and secondary, by Dr. Morgan W. Matthews .....	368
Hysterosalpingography, by Dr. Thomas B. Sellers, Dr. John T. Sanders, and Dr. John J. Young	304

## —I—

Ileus, chronic duodenal, by Walter Clayton McCoy.....	564
Illustrating, modern medical, by Tom Jones.....	697
Inaugural address, by Dr. C. Grenes Cole.....	665
Induction of labor, methods used in, by Dr. M. B. Pearce .....	79
Infections, urinary, management in pregnancy, by Dr. U. S. Hargrove.....	176
diagnosis and treatment in children, by Dr. J. D. Youman.....	425
Interstate endorsement, by Roy B. Harrison.....	609
Intestinal intubation by use of Miller-Abbott tube, by Dr. C. E. Gorman.....	395
toxemia and asthma, relation of histaminase to, by Dr. Allan Eustis.....	349
Irradiation therapy in endocrine dysfunction, by Dr. J. N. Ané and Dr. Leon J. Menville.....	433

## —J—

Jacobs, Sydney—Artificial pneumothorax: treatment of ambulatory patients with pulmonary tuberculosis .....	446
Jones, Tom—Modern medical illustrating.....	697

## —K—

Kahle, H. Reichard—Diagnosis of acute appendicitis .....	490
Torsion of gallbladder.....	37
Karlin, Samuel—Management of patient with possible appendicitis .....	494
Knight, Marvin P.—(Joint author), see Alldredge, Rufus H. ....	519
Kriz, J. R.—Endometrial changes and their relation to ovarian dysfunction, (Kriz, Schattenberg) .....	514

## —L—

Labor, methods used in induction of, by Dr. M. B. Pearce .....	79
LaNasa, Joseph A.—Ureteral calculi.....	44
Levy, Louis K.—Acute spontaneous cerebral vascular accidents in adults.....	683
Long, Huey P., Hospital staff meetings.....	648, 710
Louisiana, State Medical Society News.....	53, 106, 160, 227, 282, 339, 400, 475, 535, 595, 655, 721
State University Graduate School of Medicine scientific meeting.....	711
urologists, by Dr. Henry W. E. Walther.....	3
Lucas, R. T.—Convalescent serum in prevention and treatment of common contagious diseases in childhood .....	289

Lymphogranuloma, venereal, sulfanilamide and fever therapy in treatment of, by Dr. J. A. Trautman and Dr. H. A. Thomason.....	441
<b>Mc</b>	
McCoy, Walter Clayton—Chronic duodenal ileus.....	564
<b>—M—</b>	
Masson, James C.—Carcinoma of uterus.....	235
Matas, Rudolph—Dr. Charles C. Bass, an appreciation .....	545
Matthews, Morgan W.—Diagnosis of gout.....	624
Differential diagnosis of essential (primary arteriolar) and secondary hypertension....	368
Mauboules, J. P.—Memorial address, Louisiana State Medical Society, 1940.....	670
Mayer, George A.—Delivery of the breech.....	572
Mayoral, Antonio—Pathologic fracture of rib.....	39
Roentgenologic diagnosis of certain appendicular conditions .....	300
Medical, illustrating; modern, by Tom Jones.....	697
profession: businessman's point of view, by Edward D. Rapier.....	113
unification of, for protection of public, by Dr. Leon J. Menville.....	61
Memorial address, Louisiana State Medical Society, 1939, by Dr. S. J. Couvillon.....	1
1940, by Dr. J. P. Mauboules.....	670
Meningitis, <i>Bacillus pyocyaneus</i> , by Dr. Robert A. Wise and Dr. J. H. Musser.....	145
Mental health, effects of war on, by Dr. C. S. Holbrook .....	681
Menville, Leon J.—(Joint author), see Ané, J. N.....	433
Roentgen ray in early diagnosis of pulmonary tuberculosis .....	247
Unification of medical profession for protection of public.....	61
Mercy Hospital—Soniata Memorial staff meetings.....	584, 710
Metrazol therapy in psychotic excitements, by Dr. Ernest N. Carmouche, Dr. S. J. Phillips, and Dr. Dean H. Duncan.....	67
Metz, Waldemar, R.—In memoriam, Orleans Parish Medical Society, 1939.....	413
Twisted nose .....	180
Meyer, Monte F.—Fractures of malar bone and zygoma with eye, ear, nose, and throat complications .....	90
Miangolarra, C. J.—Age factors in acute appendicitis .....	496
Michel, Marshall—(Joint author), see Copland, Sidney M. ....	261
Milk, its relation to public health, by Dr. Robert A. Strong .....	388
control, technical and practical aspects of, by Dr. Paul S. Parrino.....	381
Miller-Abbott tube, intestinal intubation by use of, by Dr. C. E. Gorman.....	395
Moss, Emma S.—(Joint author), see Weilbaeher, J. O., Jr.....	694
Moss, Walter—Osteomyelitis of upper end of femur.....	569
Musser, J. H.—(Joint author), see Wise, Robert A.....	145
<b>—N—</b>	
Negro, peptic ulcers in, by Dr. Maurice Campagna.....	366
Neuralgia, trigeminal, by Dr. Dean H. Echols.....	87
New Orleans Charity Hospital Tumor Clinic.....	223
Nicotinic acid, use in treatment of pellagra, by Dr. J. Preston Davis.....	315
Nix, James T.—Present concept of cancer.....	65
Clinic staff meetings.....	44, 159, 274, 395, 652
North Louisiana Sanitarium staff meetings.....	273, 330
Nose, twisted, by Dr. Waldemar R. Metz.....	180

## —O—

Ochsner, Alton—Surgical considerations of scleroderma, (Ochsner, DeBakey).....	24
Odom, Charles B.—Acute perforated gastric and duodenal ulcer, (Odom, DeBakey).....	359
Orleans Parish Medical Society transactions.....	51, 225, 280, 336, 397, 473, 533, 593, 654, 719
Osteomyelitis of upper end of femur, by Dr. Walter Moss .....	569
Otitis media, mode of action of x-rays in, by Dr. L. L. Titcher.....	203
Ovarian dysfunction, relation of endometrial changes to, by Dr. J. R. Kriz and Dr. H. J. Schattenberg .....	514

## —P—

Parrino, Paul S.—Technical and practical aspects of milk control.....	381
Pasternack, Joseph G.—Aneurysm of splenic artery, (Pasternack, Shaw).....	94
Pearce, M. B.—Methods used in induction of labor.....	79
Pellagra, symptoms, diagnosis and treatment of, with special reference to use of nicotinic acid, by Dr. J. Preston Davis.....	315
Penick, Rawley M., Jr.—Treatment of empyema.....	180
Peritendinitis calcarea, by Dr. Sidney M. Copland and Dr. Marshall Michel.....	261
Phillips, S. J.—(Joint author), see Carmouche, Ernest N. ....	67
Physiotherapy in simple fractures intersecting joints, by Dr. Guy A. Caldwell.....	352
Plasma proteins: methods of determination and clinical significance, by Howard H. Beard, Ph.D. ....	678
Pneumonia, lobar, pathology of, by Dr. Andrew V. Friedrichs .....	612
x-ray diagnosis of, by Dr. M. D. Teitelbaum .....	616
pneumococcus, specific treatment of, by Dr. J. O. Weilbaecher, Jr.....	618
treatment with type specific serum, by Dr. Claude D. Head, Jr.....	73
Pneumothorax, artificial, in treatment of ambulatory patients with pulmonary tuberculosis, by Dr. Sydney Jacobs.....	446
Pollen, effect of gastric digestion on allergic power of, by Dr. Narcisse Thiberge.....	430
Portis, Sidney A.—Etiology, diagnosis and treatment of hepatitis.....	415
Pregnancy, abdominal: report of a case, by Dr. J. M. Bodenheimer.....	454
extra-uterine, by Dr. C. P. Gray and Dr. C. P. Gray, Jr.....	171
management of urinary infections in, by Dr. U. S. Hargrove.....	176
President's address, by Dr. D. B. Barber.....	607
Protection of public, unification of medical profession for, by Dr. Leon J. Menville.....	61
Proteins, plasma: methods of determination and clinical significance, by Howard H. Beard, Ph.D. ....	678
Public health, aspects of syphilitic patient, by Dr. Alfred L. Adam.....	322
milk in its relation to, by Dr. Robert A. Strong .....	388
Pulmonary diseases, recent advances in study of, by Dr. Julius Lane Wilson.....	637

## —Q—

Quindlen, James P.—Vincent's cervicitis, (Quindlen, Taubenhaus) .....	692
---	-----

## —R—

Radiology versus pseudo-radiology, by Dr. Stakely Hatchette .....	295
Radium treatment of hemangiomas, by Dr. W. R. Harwell .....	576
Rapier, Edward D.—Medical profession: businessman's point of view.....	113
Rectum, carcinoma of, by Dr. Warren H. Hébert.....	551
Rib, pathologic fracture of, by Dr. Antonio Mayoral.....	39
Robbins, I. L.—Concepts of treatment of hypertension .....	375
Roentgenologic diagnosis of certain appendicular conditions, by Dr. Antonio Mayoral.....	300
Roentgen ray in early diagnosis of pulmonary tuberculosis, by Dr. Leon J. Menville.....	247

## —S—

Sanders, John T.—(Joint author), see Sellers, Thomas B.	304
Schattenberg, H. J.—(Joint author), see Kriz, J. R.	514
Schistosomiasis, by Dr. G. H. Hauser	265
Schools, public, tuberculin testing in, by Dr. Julius Lane Wilson	244
Scleroderma, dermatologic aspects of, by Dr. James K. Howles	6
etiology and abnormal physiology of, by Dr. George E. Burch	12
surgical consideration of, by Dr. Alton Ochsner and Dr. Michael DeBakey	24
Sellers, Thomas B.—Hysterosalpingography, (Sellers, Sanders, Young)	304
Serum, convalescent, in prevention and treatment of common contagious diseases in childhood, by Dr. R. T. Lucas	289
type specific, in treatment of pneumococcus pneumonia, by Dr. Claude D. Head, Jr.	73
Shavin, J. S.—(Joint author), see Browning, W. H.	81
Shaw, James R.—(Joint author), see Pasternack, Joseph G.	94
Shreveport Charity Hospital Tumor Clinic	394
Smith, Earl Conway—Treatment of <i>Trichomonas vaginalis</i> vaginitis with sodium perborate	510
Southern Baptist Hospital staff meetings	44, 273, 460
Spinal canal, acute epidural abscess of; case reports, by Dr. Dean H. Echols	682
Strong, Robert A.—Milk in its relation to public health	388
Sulfanilamide, and fever therapy in treatment of venereal lymphogranuloma, by Dr. J. A. Trautman and Dr. H. A. Thomason	441
and sulfapyridine, toxic effects of, by Dr. Clyde Brooks	115
treatment of tularemia with thiazole derivatives of, by Dr. J. O. Weilbaecher, Jr., and Dr. Emma S. Moss	694
Sulfapyridine and sulfanilamide, toxic effects of, by Dr. Clyde Brooks	115
Syphilis, nervous system, mistakes commonly made in treatment of, by Dr. C. S. Holbrook	498
presumptive sign of: preliminary report, by Dr. Alfred L. Adam	30
primary, in 89 year old man, by Dr. J. W. Tedder	270
serodiagnosis of, with further tabulations of results obtained by Wassermann and Laughlen reactions, by Dr. J. A. Gaudet	274
Syphilitic patient, public health aspects of, by Dr. Alfred L. Adam	315

## —T—

Taubenhaus, Leon—(Joint author), see Quindlen, James P.	692
Tedder, J. W.—Primary syphilis in 89 year old man	270
Teitelbaum, M. D.—X-ray diagnosis of lobar pneumonia	616
Theophylline ethylenediamine (aminophyllin) in bronchial asthma, by Dr. B. G. Efron and Dr. Peter Everett	77
Therapy, metrazol, in psychotic excitements, by Dr. Ernest N. Carmouche, Dr. S. J. Phillips, and Dr. Dean H. Duncan	67
Thiazole derivatives of sulfanilamide in treatment of tularemia, by Dr. J. O. Weilbaecher, Jr., and Dr. Emma S. Moss	694
Thiberge, Narcisse—Effect of gastric digestion on allergic power of pollen	430
Thomason, H. A.—(Joint author), see Trautman, J. A.	441
Thyroid disease, mortality in non-endemic area, by Dr. Frederick F. Boyce	254
some problems in surgical treatment of, by Dr. Joseph E. Heard	190
Tisdale, Albert A.—More common fractures of bones of hand	356
Titche, L. L.—Mode of action of x-rays in otitis media	203
Torsion of gallbladder, by Dr. H. Reichard Kahle	37
Touro Infirmary staff meetings	273, 331, 460, 528, 584, 648, 710

Trautman, J. A.—Hyperpyrexia.....	630
Sulfanilamide and fever therapy in treatment of venereal lymphogranuloma, (Trautman, Thomason) .....	441
Trichomonas vaginalis vaginitis, treatment with sodium perborate, by Dr. Earl Conway Smith..	510
Tripoli, Carlo J.—Acute lymphocytic choriomeningitis, (Tripoli, Fader).....	308
Tri-State Hospital, Inc., staff meetings.....	44, 218, 331
Tuberculin testing in public schools, by Dr. Julius Lane Wilson .....	244
Tuberculosis, pulmonary, roentgen ray in early diagnosis of, by Dr. Leon J. Menville.....	247
treatment of ambulatory patients with artificial pneumothorax, by Dr. Sydney Jacobs..	446
value of early diagnosis in, by Dr. Edgar Hull .....	249
Tularemia, treatment with thiazole derivatives of sulfanilamide, by Dr. J. O. Weilbaecher, Jr., and Dr. Emma S. Moss.....	694

## —U—

Ulcer, acute perforated gastric and duodenal, by Dr. Charles B. Odom and Dr. Michael DeBakey	359
Ulcers, peptic, in negro, by Dr. Maurice Campagna.....	366
Undulant fever, by Dr. W. H. Browning and Dr. J. S. Shavin .....	81
Urinary infections, diagnosis and treatment in children, by Dr. J. D. Youman.....	425
management in pregnancy, by Dr. U. S. Hargrove .....	176
Urologists, some Louisiana, by Dr. Henry W. E. Walther .....	3
Uterus, carcinoma of, by Dr. James C. Masson.....	235

## —V—

Vaginitis, Trichomonas vaginalis, treatment with sodium perborate, by Dr. Earl Conway Smith..	510
Vascular accidents, acute spontaneous cerebral, in adults, by Dr. Louis K. Levy.....	683
Vincent's cervicitis, by Dr. James P. Quindlen and Dr. Leon Taubenhau .....	692

## —W—

Walther, Henry W. E.—Some Louisiana urologists.....	3
War, effects on mental health, by Dr. C. S. Holbrook .....	681
Watters, T. A.—Emotional factors in disease.....	118
Weilbaecher, J. O., Jr.—Acute spinal epidural abscess .....	208
Specific treatment of pneumococcus pneumonia .....	618
Treatment of tularemia with thiazole derivatives of sulfanilamide, (Weilbaecher, Moss) .....	694
Wilson, Julius Lane—Recent advances in study of pulmonary diseases .....	637
Tuberculin testing in public schools.....	244
Wirth, Willard R.—Angina pectoris and coronary thrombosis .....	671
Wise, Robert A.—Bacillus pyocyaneus meningitis, (Wise, Musser) .....	145
Woman's Auxiliary to the Louisiana State Medical Society .....	55, 108, 165, 228, 284, 344, 407, 483, 539, 601, 660, 727

## —X—

X-rays, mode of action in otitis media, by Dr. L. L. Titche .....	203
---	-----

## —Y—

Youman, J. D.—Diagnosis and treatment of urinary infections in children.....	425
Young, John J.—(Joint author), see Sellers, Thomas B. ....	304

## —Z—

Zygoma and malar bone, fractures of, with eye, ear, nose and throat complications, by Dr. Monte F. Meyer .....	90
---	----



# New Orleans Medical

and

# Surgical Journal

Vol. 92

JULY, 1939

No. 1

## DECEASED MEMBERS OF THE LOUISIANA STATE MEDICAL SOCIETY\*

"O COME AND MOURN WITH ME AWHILE"

S. J. COUVILLON, M. D.

MOREAUVILLE, LA.

I accepted with no small degree of appreciation, the honor in having been chosen the "Memorial Speaker" at so auspicious an occasion—The Memorial Exercises, conducted annually by the State Medical Society at a public session of its annual convention, designed for the general public as well as the bereaved families and members of the medical profession in commemoration of the untimely passing of every member of the Healing Art in the last twelve months within the confines of Louisiana.

To the thirty-four members of the Louisiana medical profession, in whose memory we are assembled this evening, to eulogize and pay proper homage, must our attention be turned. Our medical heroes, dead or alive, are never remembered by the people as are the heroes and soldiers, dead and alive, in the way of public praises and ovations following and during conflicts of warfare, nor the engulfed admiration of movie sirens as they make short stop-overs in some of our heavily populated centers. Such honors never befall the silent, tireless and consistent laboring doctor while fighting the battle with life and death, day in and day out, whether it be in the

immaculate rooms of a hospital or in the humble home of some poor worker, until at a time following so many deaths we gather in this modest way, with bowed heads, with sad hearts, to memorialize our dead confrères. I do not believe that there is a quotation or verse more fitting, more appropriate, and so true as that of our literary friend, Thomas Gray, in his "Elegy Written in a Country Churchyard," when he said:

"The boast of heraldry, the pomp of power,  
And all that beauty, all that wealth e'er gave,  
Awaits alike the inevitable hour—  
The path of glory leads but to the grave."

Death is sad, very sad, and while it may seem that the cloak of modesty is being ignored, yet it seems impossible to refrain from saying that death is particularly sad when the Grim Reaper snatches away the life of an element of our people whose mission on earth, and whose devotion to duty, are designed not only in the prolongation of the lives of the people, but when possible, the prevention of death; that element of human intelligence with a trained conception of medical and surgical knowledge who night and day wage a terrific fight, not only against a visible enemy, but against an enemy unseen, unheard; against nature and against death. Said a great American physician at the recent session of the American College of Physicians in New Orleans, "scientific knowledge cannot be dispensed in boxes and crates as a market commodity, but knowledge can only emanate from skilled hands, schooled and keen minds, honest hearts."

Yes, death is sad, and doubly sad because it is just the commencement of another

\*Memorial address read before the sixtieth annual meeting of the Louisiana State Medical Society, April 24, 1939.

struggle—an endless struggle so beautifully versed by the great poet:

“Think thee my soul  
That death is but a Groom,  
Which brings a taper  
To the outward room.”

The thirty-four good doctors, most of whom were members of the State Medical Society, whose deaths we are assembled here this evening to chronicle and share like sorrows, were physicians and surgeons actively engaged in their respective callings in the last year, and I point with satisfaction that most of them were known to me. I point with distinction and regret to the passing of one of my two remaining college professors, Dr. Abraham Louis Metz, two clinical instructors, five class-mates, one room-mate, several close medical and political friends, two Avoyelles Parish confrères, Dr. Barbin and Dr. Poret, who died within a few hours of each other, buried the same day in nearby towns—one funeral throng going from one to the other—a coincidence, but such a sad epoch; several college fraternity brothers, a few railway physician and surgeon associates. Many of the deceased group were friends as a result of acquaintances made at various medical conventions and assemblies. In reviewing this sad roll of dead physicians, with a glance we note the ages they had attained, ages yet filled with such pronounced activities and usefulness to their country, and yet realize, as George Hebert so plainly, so sadly versed, saying that their:

“Flesh is but the glass, that holds the dust,  
That measures our time, which also shall  
Be crumbled into dust.”

And yet, in the Elysian lands above, these thirty-four medical warriors have joined other souls, hand in hand, shoulder to shoulder, heart to heart—all for the everlasting common cause—reviewing their earthly labors so often performed without any thought of compensation, so often prompted by the love of their sacred calling, and the satisfaction they were rewarded in the realization of a work well done. This is the picture and status of the medical profession with its many ideals, un-

paralleled in all other professions, trades or vocations. It is universally recognized that we are actually the only class of professional people who so often work without remuneration. Think of the many charity hospitals of the country, the so many other eleemosynary institutions, medical leagues, medical health units, the various public health departments of the land which are conducted only by the medical and surgical men of a country with such tasks and responsibilities attached. All of this carries with it little, if any, compensation, and all of this is regardless of the many sacrifices we are daily called upon to do in private practice, when the so many indigent sick and helpless, who are all as human as any of us, demand our services. At this time I believe it is befitting to quote the phraseology of Voltaire, the French philosopher and writer, who said: “But nothing is more estimable than the physician who, having studied nature from his youth, knows the properties of the human body, the diseases which assail it, the remedies which will benefit it, exercises his art with caution and pays equal attention to the rich and the poor.” Think also of the little thought which is being given to the number of years the doctor must devote to his preparations, regardless of the financial aspect, before he is capable of handling the lives of humanity—years of young manhood and womanhood, studiously bent over textbooks, absorbed in the various laboratories, with the years slipping away while he reaches and searches for all the knowledge and skill which it is humanly possible to acquire, years when other young men and women are enjoying their youth, or are branching out into some other field of adventure, years when the medical student is immersed in the deep mysteries of the human body. Again we realize the public spiritedness, the civic energy which has always been in the minds and hearts of our doctors. Will you agree with me that lay minds understand that the medical man has always been very frank and honest with the public at large? The bridging of the gap between the modernized

version of herb medicines, the chemical laboratory with its sufamilamides and pyridines, the x-ray with its so many technics of diagnosis and therapy, are all being well perfected and the world is daily being told about the various accomplishments, propagated, as it were, to the lay people in intelligent articles, private lectures and radio talks, mediums which are aiding materially in casting aside the prejudices so common in ancient times, when our people in all faith would crowd around the village street corner at the banjo music and comedy acts of a medicine show and bought what the showman offered, just as his savage ancestors had given devout heed to the chants and antics of their wizards. The old medicine show is almost as rare now as the "dodo"; the quack nostrum is on the wane, but the atmosphere has been and is still full of medical heroes and heroines. Yes, full of martyrs, of immortals, of everlasting sacrifice, usefulness, such as has been the careers of Professors Elliott, Metz, Lewis; of Doctors Seemann, Dowling, Cazenavette, Hume, Roy, Wilson, Robin, Meraux, Gremillion, Dupuy, Fenno, Cappel, Ducote, Signorelli, and the many excellent practitioners and community leaders of our country, men who always towered high in the estimation of those who value rectitude and have the proper appreciation for the lofty attributes that make life honorable and beautiful. And while all sympathy centers on the thirty-four bereaved families of Louisiana this evening, yet the honor and the glory, sayeth John Dryden, poet and prose writer, is theirs:

"Tis best to die,  
Our honor at the height."

May I ask that you stand with me with bowed heads as I read the list of the deceased in the last year:

Walter H. Brent, Hammond.  
Aristides T. Barbin, Marksville.  
Isadore Brickman, Alexandria.  
Lionel L. Cazenavette, New Orleans.  
Frederick L. Fenno, New Orleans.  
Gaston L. Gaudet, Lutchet.  
John A. Hendrick, Shreveport.  
John Raymond Hume, New Orleans.

Louis A. Meraux, New Orleans.  
Caroline Mims, New Orleans.  
Edward A. Poret, Hessmer.  
Robert H. Potts, New Orleans.  
William H. Robin, New Orleans.  
J. Alphonse Sampite, Cloutierville.  
William H. Seemann, New Orleans.  
John Signorelli, New Orleans.  
Augustus E. Simonton, Jonesboro.  
Davidson K. Texada, Alexandria.  
Herbert B. Wren, Shreveport.  
Albert S. Yenni, New Orleans.  
Robert D. Voorhies, Lafayette.  
H. P. Doles, Mooringsport.  
R. E. Ellzey, Cotton Valley.  
Frank J. Hartley, New Orleans.  
Clinton E. Hunter, Jennings.  
William L. Litton, Cheneyville.  
Orrin F. Matthews, Urania.  
Abraham Louis Metz, New Orleans.  
Sam H. McMahan, DeRidder.  
James P. Powell, Mangham.  
John E. Rooks, Shreveport.  
John B. Sewell, St. Francisville.  
John Tolson, Church Point.  
Sidney LeG. Williams, Shreveport.

"Eternal rest grant unto them, O Lord, and let perpetual light shine upon them."

---

### SOME LOUISIANA UROLOGISTS

HENRY W. E. WALTHER, M. D.  
NEW ORLEANS

The history of urology as a specialty is a development of the twentieth century, but urology as a field of study, is one to which many of the great physicians and surgeons for several centuries have devoted much time and attention. Louisiana has contributed her just share to the advancement of this branch of surgery during the past seventy years. In gathering data concerning the story of the growth of knowledge on urology in Louisiana, I have examined the files of four medical journals founded in New Orleans, namely, *L'union médicale de la Louisiane*, *New Orleans Medical News* and *Hospital Gazette*, *New Orleans Medical Times*, and *New Orleans Medical and Surgical Journal*. This last, the second oldest medical journal in the United States, is the

only one of the four that survives today. In pursuing the pages of these chronicles one discovers an amazing mass of material in evidence of the interest in urology as a field of study for the years covered, namely, 1844 to 1914. The story of such an epoch naturally concerns itself with the men who made it possible. One hundred and sixty-eight articles on urologic subjects by physicians of Louisiana have appeared in the above named medical journals, within the dates named, 54 of which were written by eleven men, the majority of said contributions having appeared before the turn of the century. Enumerated by subjects they include: 33 papers each on the bladder and on the urethra, 17 on urine and urinary disorders, 16 on kidney, 14 on the testes, 13 on urinary fistulas, 12 each on hydrocele and penis, nine on the prostate, five on the scrotum and four on the hypospadias.

As an example of the interest shown in genito-urinary diseases in Louisiana, in the early days, I quote from the *Southern Medical and Surgical Journal* for 1846 as follows: "Prize Essays — The Louisiana Medico-Chirurgical Society offers a gold medal of the value of one hundred dollars, for the best Essay on "Strictures of the Urethra, with Their Treatment." This prize is offered to the competition of the profession in all countries; but the essays must be written in the English or French language. The communications must be accompanied with a letter of corresponding mottoes, to the President of the Louisiana Medico-Chirurgical Society, New Orleans, La., and should be received by the first of February, 1847."

The considered infrequency of calculous diseases in the South, in the early literature, is worthy of particular mention. In 1896, G. B. Johnston, after a study on the subject of stone in the bladder in the white and negro races, wrote, "Some states are peculiarly exempt from calculous disease, notably, Mississippi, Arkansas, Alabama, Louisiana and Florida." The same year, Rudolph Matas, in his "Surgical Peculiarities of the American Negro", said, "Urinary calculus is a comparatively rare disease in

both races, in the whole territory that borders on the Gulf Coast . . . According to our experience in the Charity Hospital it would appear that urinary calculus is less frequent but more fatal in the negro than in the white." With the introduction of cystoscopy and x-ray these opinions had to be modified.

It is gratifying to find that the list of authors includes such giants in the history of medicine in Louisiana as Warren Stone, Alexander J. Wedderburn, Anthony Peniston, Isaac L. Crawcour, Tobias G. Richardson, Edmond Souchon, Samuel Logan, Andrew W. Smythe, Rudolph Matas, Charles Chassignac, Frederick W. Parham, Carroll W. Allen and C. Jeff Miller.

Isaac L. Crawcour was the first in Louisiana to devote special attention to so-called urinary diseases. In the medical register and directory of the United States edited by Dr. Butler (2d ed.—1878) appears the entry:

Crawcour, Isaac L., 251 Camp St., M. D.; Medical School of N. O.; Prof. Med. N. O. Med. Sch.; Corresponding Member of Society of Arts, England;—specialty, Diseases of the Urinary Organs.

Crawcour was born in Devonshire, England, in 1825. He studied medicine in London, became a resident in Guy's Hospital and graduated from the University of London, we are told, in 1851, coming to New Orleans in December of that year. He received an honorary degree from New Orleans School of Medicine where he became professor of medical chemistry in 1858. He was one of the founders of the New Orleans Academy of Sciences, of which he was an active member for many years. His obituary in 1866 says, he "was a man of the highest intelligence and great accomplishments in medicine . . . The city is indebted to him for the first introduction of some instruments and methods of procedure now in general use." Crawcour's articles, all of which preceded 1869, include reports on diseases of the urinary and genito-urinary organs, constitutional effects of substances introduced into the urethra and on the urine and urinary deposits. He maintained a laboratory in his home and in his later

years made a particular study of nephritis. He was undoubtedly a real pioneer in his field.

Another type of specialist who preceded the urologists was the physician who devoted a large part of his time to the treatment of venereal diseases. Among these in New Orleans were Edgar S. Poincy and Adrian Hava. Of Poincy little has been learned except that he graduated from the Medical College of Louisiana in 1881 and practiced in New Orleans in the eighties. Hava was born in 1865, coming to New Orleans from Havana. He graduated from the Medical College of Louisiana in 1881, earning a degree as doctor of pharmacy as well as that of doctor of medicine from this school. Hava maintained an extensive practice in the city, although living for many years in Waveland, Mississippi. He died in 1933.

We are indebted to Edmond Souchon for two articles on urethral spasm, one on double hydrocele and one on the philosophic anatomy of the kidney—during the period studied. Souchon was a native Louisianian, having been born in Opelousas in 1842. He received his medical training in Paris, and shortly after graduation served as interpreter for J. Marion Sims, when Sims visited Paris to demonstrate his operation for vesico-vaginal fistula. Souchon returned to New Orleans and was engaged in medical work in this city for nearly sixty years. He was Vice-President of the American Medical Association and of the American Surgical Association. He was a founder of the Southern Surgical Association and was an Honorary Fellow of the American College of Surgeons. He served Tulane University as professor of anatomy from 1884 to 1907; was emeritus professor of anatomy from 1907 until his death. In his honor, the University, in 1908, created the Souchon Museum of Anatomy, as a perpetual memorial to his forty years of devotion to the department he had so ably directed. He died in 1924.

Charles Chassaignac was the first physician in Louisiana to limit his practice to urology. Chassaignac was born in New Or-

leans in 1852. He graduated from the Medical Department of the University of Louisiana, now Tulane University of Louisiana, in 1883, and practiced general medicine in his native city for several years, after which he went to France for study and research. Returning to New Orleans, he associated himself with the New Orleans Polyclinic, later the Post-Graduate School of Tulane University School of Medicine, serving as dean from 1898 to 1925. He occupied the first chair of genito-urinary diseases in this school, serving from 1890 to 1925. His practice was limited to genito-urinary diseases from 1895 to his death. He was president of the Orleans Parish Medical Society and of the Louisiana State Medical Society and edited the *New Orleans Medical and Surgical Journal* from 1896 to 1922, first in collaboration with Isadore Dyer and later alone. He started the Genito-Urinary Out-Patient Clinic at Charity Hospital in 1913. He was one of the founders of the New Orleans Sanitarium and Training School for Nurses. Although Rudolph Matas was the first in America to use spinal anesthesia (at the New Orleans Charity Hospital in 1899), Chassaignac was the first to sponsor its use in genito-urinary surgery in Louisiana. He died in 1936.

Sidney P. Delaup was for some years an associate of Chassaignac in genito-urinary practice. Delaup was born in 1863. He graduated from Tulane University School of Medicine in 1890, after which he continued his studies in Philadelphia, New York, London, Paris, and Berlin. Returning to New Orleans, he served in the Genito-Urinary Out-Patient Clinic of Charity Hospital with Chassaignac. From 1893 to 1905, he was clinical assistant in genito-urinary diseases in the New Orleans Polyclinic and from 1905 until his death in 1923, he served as professor of surgery of the genito-urinary organs and rectum in this school. In 1910, Delaup reported 1,239 operations under spinal anesthesia, most of them urologic procedures. This was the largest tabulation at the time and probably the first dealing with spinal anesthesia in urology in the United States.

Paul J. Gelpi, also on the staff of the New Orleans Polyclinic, was born in New Orleans in 1874. He graduated from the Tulane University School of Medicine in 1896, after which he studied in France, Germany and Austria. He was made clinical assistant in genito-urinary and rectal diseases of the Polyclinic in 1899, later being made lecturer, then assistant professor and professor, serving until 1925. Gelpi died in 1932.

Abraham Nelken, who practiced urology in New Orleans for some years, was born in 1876. He graduated from Tulane University School of Medicine in 1899. Nelken published four articles on genito-urinary subjects in local journals between 1904 and 1913. He was chief of the Urological Division of Touro Infirmary for fifteen years, until his death in 1926.

A truly colorful figure in the history of urology in Louisiana was Carroll W. Allen, who was born in 1874. A general surgeon by vocation, he made urology and local anesthesia his hobbies. His masterful textbook of 674 pages dealing with "Local and Regional Anesthesia", first published in 1914, remains to this day a standard reference. In this book appeared, for the first time, his description of suprapubic prostatectomy performed under local infiltration anesthesia with novocain. He was a pioneer in this field. As the years passed it was his desire to relinquish surgical urology and devote himself solely to general surgery but until the last, patients from every corner of the country and from abroad came to him to have the prostate removed under local anesthesia. His gentleness, his patience and his sympathetic understanding endeared him to his many assistants as well as to his patients. For many years he was assistant professor of clinical surgery in Tulane University Medical School; not a few of the men practicing urology throughout the South today owe much to the lectures, clinical demonstrations and operative seminars enjoyed at Charity Hospital under Allen. He served the Southern Baptist Hospital as chief of the Surgical Division from 1926 until the time of his death in 1934.

Particularly noteworthy in this group of

New Orleans urologists was Joseph Hume, who was born in Summerville, South Carolina, in 1876. He was educated in the schools of Charleston, and the University of Pennsylvania, and was an honor student in the Medical College of South Carolina. Following his graduation he went to Johns Hopkins University where he studied his chosen specialty under the direction of Hugh Hampton Young. Hume came to New Orleans in 1904 and in 1905 became lecturer and clinical instructor in genito-urinary and venereal diseases in Tulane University School of Medicine; in 1927 he was made professor of urology and from 1931 to 1935, he served as director of the Division of Urology. He became professor emeritus of urology on his resignation in 1935 because of ill health. Hume died in 1936.

Thus, Louisiana has more than kept pace with the rest of the United States, both in the study of the genito-urinary tract and in the development of urology as a specialty. New Orleans, in this, as in other branches of medicine is one of the country's centers, for study and medical research, and the city's urologists are proud of their heritage—the pioneer work of those who have gone before.

The writer wishes to acknowledge his indebtedness to Miss Mary L. Marshall for her valued collaboration in collating the data embodied in this tribute.

---

## SCLERODERMA\*

### A SYMPOSIUM

#### THE DERMATOLOGIC ASPECTS

JAMES KIRBY HOWLES, M. D.†

NEW ORLEANS

When this paper was first conceived it was my intention to summarize the dermatologic and laboratory findings in eight cases of generalized scleroderma which had come under my observation during the last ten years. Later, when this symposium was planned and I was asked to discuss the dermatologic features of this bizarre

---

\*Read before the Orleans Parish Medical Society, January 23, 1939.

†From the Division of Dermatology and Syphilology of the School of Medicine of Louisiana State University.

and interesting disease, it seemed wiser to omit the case reports, to avoid trespassing on the fields assigned to the other essayists of the evening. An apology is in order for the necessarily elementary and "textbook" character of my presentation.

The first authentic case of scleroderma seems to have been reported by Curzio of Naples in 1752.<sup>1</sup> There was little interest in the condition, and only occasional cases were reported until 1845, when Thirial recorded two cases under the name "Sclèrème des adultes." Thereafter the disease was reported with increasing frequency. It is, however, still an unusual and misunderstood condition. The literature is now replete with case reports and reports of research work, yet scleroderma remains an enigma to the dermatologist.

The multiplicity of names by which scleroderma is described tend to confuse the picture. Perhaps the most common dermatologic term is "hidebound skin," which vividly pictures the rigidity and loss of elasticity of the involved skin in both the localized and diffuse types. Other synonyms used by English-speaking dermatologists include scleroderma adultorum, morphea (localized scleroderma), scleriasis, dermatosclerosis, chorianitis, and sclerostenosis. The foreign nomenclature is even more inclusive and confusing.

#### CLASSIFICATION

Sellei's<sup>2</sup> classification, although it is accepted by many European dermatologists as ideal, is too inclusive to be really practical:

1. Scleroderma verum.
2. Acrosclerosis.
  - a. Sclerodactylia.
3. Morphea (en plaque).
  - a. Morphea guttata.
4. Scleroderma adultorum (Buschke).
  - a. Sclerema neonatorum.
5. Acrodermatitis atrophicans.

A simpler clinical classification will be used as the basis of this discussion:

1. Circumscribed scleroderma (morphea).
2. Diffuse scleroderma.
3. Sclerodactylia.

4. White spot disease (Westberg's<sup>3</sup> disease, morphea guttata).

#### ETIOLOGY

The exact etiology and pathogenesis remain unknown. The most reasonable theories of origin include:

1. *A toxic origin.* The champions of this theory believe that some preexisting disease or toxic focus precipitates the pathologic change, although the exact nature of the focus remains undetermined. Such inflammatory conditions as erysipelas, certain liver infections and certain rheumatic states have been suggested. Cornbleet and Struck<sup>2</sup> consider that scleroderma is caused by a toxin which injures the collagen synctium, and that the injured tissues take up calcium secondarily.

Sannicandro<sup>4</sup> advances a bacillary origin. He supports his diagnosis of sarcoidal sclerodermic tuberculosis by three arguments, the response to gold therapy, the positive cutaneous tuberculin reaction, and the histologic findings in certain forms of scleroderma. Milbradt<sup>5</sup> considers infection of the liver the etiologic factor on the basis of telangectasia hemorrhagica hereditaria (Osler's syndrome) which he found associated with scleroderma in a single case. Whitehouse<sup>6</sup> advances coexistent infection as a cause, particularly syphilis, and Ayers<sup>6</sup> believes that drug intoxication, particularly by arsenic, may be responsible.

2. *Glandular and metabolic dysfunction.* This hypothesis is the subject of a great deal of controversy. Thus Sequeira<sup>2</sup> attributes the disease to dysfunction of the adrenal glands, but Foerster<sup>2</sup> considers pathologic changes in the thyroid gland as the underlying etiologic factor. The most reasonable theory is that the parathyroid glands are responsible, for the most promising advance in the therapy of scleroderma has been achieved by parathyroidectomy. Hypercalcemia is not a constant finding, but has been noted in a sufficient number of cases to be correlated with a chronic disturbance of the parathyroid metabolism. Brooks,<sup>7</sup> in reporting one case of calcinosis and another of scleroderma, thoroughly reviewed the literature, and abnormal calcium

and phosphorus values seem numerous enough in the reported cases to warrant continued study along this line.

3. *Pathologic changes in the nervous system.* There are many advocates of neurologic disorders as the etiologic basis of scleroderma, and it is impossible at this time to disprove many of these theories. Hoffman<sup>2</sup> believes that the disease is caused by instability of the vegetative nervous system. Murchison<sup>6</sup> has reported degenerative lesions of the spinal cord in association with it. Sequeira<sup>2</sup> believes that the pathology of morphea or localized scleroderma lies in the central ganglia rather than the peripheral nerves. On the other hand, Kingery<sup>6</sup> and Aronstam<sup>6</sup> have reported interesting cases of scleroderma associated with or subsequent to trauma to the peripheral nerves.

After literally wading through these and other hypotheses, one is inclined to believe with Castle<sup>6</sup> that scleroderma is due to disordered function of certain glands of internal secretion in combination with some disorder of the nervous system. Practically all of the theories which have been advanced are applicable in certain instances, but a theory which will cover all cases has not yet been formulated.

#### HISTOPATHOLOGY

Most dermatologists, according to Ormsby,<sup>2</sup> consider scleroderma to be a trophoneurosis or angiotrophoneurosis. He quotes Osler, as follows: "The analogy of myxedema, to which scleroderma is the cutaneous antithesis, suggests that it may be caused by some alteration in an internal secretion, or some disturbance of that nice balance between the various internal secretions . . . which some believe play such an important role in nutrition . . . The frequency with which acute forms follow an infection is paralleled by the thyroid insufficiency and atrophy caused by myxedema after a fever, such as measles and scarlet fever."

Ormsby continues: "The histologic changes of all clinical types of scleroderma are practically identical. In the stage of infiltration there occurs marked hypertrophy of the collagenous tissues through the corium and hypoderm, which is cell-rich

and associated with vascular dilatation, causing effacement of the normally wavy line made by the alternating rete pegs and papillae. At this point the stage of atrophy sets in, the connective tissue gradually becoming more and more sclerotic, thinning the corium and subcutis, the fat disappearing, the cellular infiltration remaining only in small perivascular areas, the blood vessels becoming obliterated from pressure and from inflammation of their walls, most of them, like the hair follicles, sweat and sebaceous glands, later becoming absorbed. The epidermis is thinned by pressure atrophy, and the elastic tissue is mechanically altered, but seldom to the point of marked destruction. There may be an increase of pigment present in either stage."

A brief summary of histopathologic alterations will include the following: (1) Scleroderma is a chronic inflammatory process of the skin and subcutaneous tissue; (2) there are two stages, the early edematous and late atrophic; (3) the inflammatory infiltrative changes disappear promptly; (4) the histologic structure is essentially the same in all clinical forms; (5) the epithelium, except for thinning due to atrophy, is only slightly involved; (6) pressure atrophy destroys the hair follicles and glands; (7) the blood vessels become less numerous and their lumina are narrowed; (8) there is a perivascular lymphocytic infiltration; (9) hypertrophy of the collagenous tissue occurs; (10) papillae are obliterated by widening the connective tissue fibers; (11) fatty tissue is replaced by sclerotic tissue.

#### CLINICAL MANIFESTATIONS

The clinical manifestations of scleroderma are frequently perplexing, particularly when they coexist with other diseases in which atrophy and sclerosis may be part of the clinical picture. Such confusion may occur in Raynaud's disease, Addison's disease, and syphilis.

*Circumscribed scleroderma (morphea)* is usually limited to one or several patches on the skin, most often on the chest or abdomen. Most commonly they are round or oval, and slow-growing. The lesions may



be preceded for weeks or even for months by an itchy patch, red or violaceous in color. The initial patch gradually fades and is replaced by a sclerotic lesion which is glossy and indurated, like polished bone or ivory, and is surrounded by a well-defined violaceous or telangiectatic border, the color being due to dilated capillaries. The skin of the lesion is inelastic, its natural furrows disappear, and hair and sweat glands are destroyed. The consistency, as has been well said, suggests a bladder filled with lard. The follicular orifices may be unusually prominent, and eventually the lesion may resemble pigskin. Occasionally the plaques are slightly elevated and resemble keloids.

The localized form of scleroderma may progress to the diffuse variety, but more often the plaques remain stationary for months or years and then undergo regressive changes, either spontaneously or as the result of treatment. They may reassume the appearance of normal skin, or may remain as brownish patches without much change in the texture of the involved skin (*morphea nigra*). Atrophic changes may occur in other cases, or a hemiatrophy, either alone or in association with generalized scleroderma.

Localized scleroderma may also occur in the form of stripes or bands. Sometimes the two forms appear together. The striped variety is particularly common in children, and usually appears on the limbs. The bands may be single or multiple. They vary in width from a quarter to half an inch or more, and may be of considerable length. They may follow the course of a rib, or the longitudinal axis of an extremity, or they may appear in the middle of the forehead.

Unna<sup>3</sup> describes a "card-like" scleroderma, in which the lesions have a bluish-white color and resemble a small portion of a visiting card let into the skin. The lesions are multiple, somewhat depressed, and much smaller than those of typical *morphea*.

*Diffuse scleroderma* is characterized by the appearance of multiple hard, smooth, ivory-colored areas, which are immobile and which are usually surrounded by a violaceous margin. The appearance varies ac-

ording to the site of involvement and the stage and extent of the disease.

Early in the disease the affected areas are usually erythematous and edematous. The edema pits only on sustained deep pressure, and is soon replaced by atrophy. The skin becomes smooth, yellowish, and firm, and is so retracted that the underlying structures are bound down. The changes occur insidiously, usually involving the face and hands, and in more advanced stages these parts become literally "hidebound," and the face is absolutely expressionless. Warty, pigmented, blackish patches may appear about the elbows and neck, and in the axillae and groins. The disease usually begins in the upper part of the body, especially on the neck and shoulders, but may also begin on the face, trunk, or extremities. It usually spreads in a more or less symmetrical fashion.

During the progress of the disease the pressure of the hard overlying skin brings about atrophy of the muscles and bones, often with resultant deformity. The limbs become so shrunken that flexion is impossible. The lips become thin and tight, the nose shrivelled, as in late lupus, the eyelids retracted, and the eyeballs shrunken, with a blank, staring expression. Sclerotic changes in the ear drum may cause deafness. The mucous membrane may be involved, and the trophic patches appear on the inside of the cheeks, and on the palate and tongue. The teeth may become loose and fall out. The mucous membrane of the vagina also may be affected.

The vitality of the affected skin is so lowered that even slight injuries, especially about prominent parts like the elbows and knees and the malleolar region, are likely to be followed by breaks in continuity, intractable ulceration, and even local gangrene. Late in the disease hyperpigmentation or depigmentation or a diffuse bronzing of the skin may be present, and the affected areas may become hairless.

In rare instances diffuse scleroderma may be complicated by the presence of subcutaneous calcareous deposits which are apparently a terminal phase of the fibrosis. They originate in the midst of dense con-

nective tissue, gradually reach the surface, and there, after ulceration has ensued, are finally expelled. Chemically these concretions consist of calcium carbonate and calcium phosphate. They occur most frequently about the joints.

Diffuse scleroderma, although subject to intermissions, is slowly progressive. It may not reach its full development for months or years. It may regress without sequelae, may remain stationary, or may progress until death occurs, usually from bronchopneumonia or some other intercurrent infection.

*Sclerodactylia* is a variety of diffuse scleroderma which begins on the hands and tends to spread to the arms, neck, face, and chest. It attacks several fingers of one hand, or attacks both hands more or less symmetrically. Progressive sclerotic changes occur, and ulceration and cicatrization are occasionally found, especially on the bony prominences of the knuckles or joints of the fingers. The nails become dystrophic, discolored, or opaque, and are sometimes narrowed and distorted, or completely obliterated. The fingers become hard, stiff, and shiny, and the skin is gray. They may be permanently distended or semi-flexed because of ankylosis of the joints. The terminal phalanges may undergo spontaneous necrosis and absorption and the fingers may be transformed into shrivelled stumps. All grades of disfigurement may be present, from a claw-like deformity resembling the "main griffe" of leprosy to a mutilated extremity with atrophic stumps.

*Morphea guttata* (*white spot disease*, *Westberg's disease*) is characterized by multiple, rounded, atrophic macules, which are sometimes surrounded by a purplish-blue zone or by a halo of various colors. The lesions occur chiefly in clusters or lines on the upper part of the chest and neck, but the arms and other regions may also be involved. The spots are chalk-white and shiny, and range in diameter from 1 to 10 mm. They sometimes coalesce and form bizarre plaques, and the surface may be covered with telangiectases, scales, or follicular dots. Sometimes the lesions are slightly elevated and resemble small keloids. Old lesions may become hyperpigmented.

Eventually all lesions become atrophic and slightly depressed, and are covered with a thin, parchment-like epidermis. MacKee and Wise<sup>3</sup> believe that all reported cases of white spot disease can be divided into two groups, a true scleroderma group and a lichen group (*lichen planus sclerosis*).

It is evident from what has been said that all varieties of scleroderma are characterized by extreme induration and rigidity of the skin, with ultimate atrophic changes. Indeed, atrophy is the outstanding feature of the disease. It seems most reasonable to assume in the light of our present knowledge that it is chiefly due to interference with the nerve supply and to glandular dysfunction.

#### SYMPTOMATOLOGY

Scleroderma develops insidiously, with mild and variable symptoms. It may appear without prodromal symptoms of any sort. In the localized variety itching may be the prodromal symptom. The diffuse variety may be preceded by some general disturbance such as fever, chilliness, or pains in the joints or limbs. This variety may also develop acutely, with associated erythema, urticaria, or bullous formation, but this is not usual.

The lesions are usually insensitive themselves. The first definite symptom is a feeling of tightness or stiffness of the affected area, which eventually prevents freedom of motion and ultimately any motion at all. There may be stiffness of the neck, difficulty in opening the eyes or mouth, and rigidity of the limbs. Later it may be impossible to masticate the food or open the mouth, and even respiratory motion may be restricted.

When the extremities are involved rheumatoid arthritis is fairly common. In sclerodactylia vasomotor paroxysms occur and increase in frequency until a permanent asphyxial phase ensues. There is considerable pain associated with the early crises, and later ulceration is responsible for pain, particularly when there is an attempt to move the rigid joints. Pain is not so marked when the lesions begin on the lower extremities.

## DIFFERENTIAL DIAGNOSIS

A well marked circumscribed scleroderma can scarcely be mistaken for any other affection, for the flat, ivory-white, circumscribed, violet-rimmed unilateral patches are characteristic. The stage of the disease as well as the type of the eruption are, however, responsible for more confusing and more varied manifestations. Completely to differentiate the four varieties of scleroderma which have been discussed would require almost a textbook. It must suffice here merely to mention the important conditions which must be ruled out to establish diagnosis. The differentiation includes:

*From diffuse scleroderma:* Dermatomyositis, erythromelalgia, myxedema, acrodermatitis chronica atrophicans, sclerema, edema neonatorum, ichthyosis, and xeroderma pigmentosum.

*From sclerodactylia:* Leprosy, syringomyelia, and Raynaud's disease.

*From morphea (circumscribed scleroderma):* Leprosy, cicatrix, and epithelioma.

*From white spot disease:* Lichen planus atrophicans and vitiligo.

## THERAPY

There is no panacea for scleroderma, and treatment is, on the whole, entirely unsatisfactory. Time seems to be the chief factor in the healing of all varieties of the disease. No local measures have proved of any value, nor have general measures, though they are naturally desirable, as an improved general condition will always improve a local state.

Ormsby<sup>2</sup> gives an excellent summary of the various forms of therapy which have been recommended. Roques recommends small doses of thyroid extract given over long periods of time, and others have reported apparent improvement with it. It should be begun promptly. Little demonstrated a patient suffering with scleroderma associated with Graves' disease and later myxedema, who had been greatly benefited by the internal administration of thyroid extract and the implantation of human thyroid gland into the bone marrow. Suprarenal extract has been of value in a small number of cases, according to Ormsby, but

pituitary extract and ovarian and testicular extracts are of doubtful value.

Ferments of various kinds have been recommended. Sellei recommends pancreatic ferments. Kolle used coeliacin, an extract of the mesenteric gland, and Schwerdt believes that it has merit. Liver extract has been used tentatively but is of very doubtful value. Vitamin D therapy has become popular in recent years. Reports are still few, but Cornfleet and Struck recommend it in daily doses of 200,000 to 300,000 international units.

Tonics are indicated, as the general health of the patients is usually impaired; those containing iron or iodine are most popular. The internal administration of thiosinamin, salol, ammonium chloride, pilocarpine, the salicylates, and acetyl-chlorine has also been recommended.

Topical therapy plays an important part in lubricating the skin and helping to overcome the dryness and hardness present in advanced stages, but otherwise is of no value. The most useful agents are cod liver oil ointment, lanolin, neat's foot oil (scented) and plasters.

The results of physical therapy are neither consistent nor impressive. Epstein<sup>2</sup> has used thorium X emanations in morphea, incorporated in an ointment base containing eucerine, 1000 to 2000 electrostatic units per gram. The inconvenience and expense of this method are not justified by the reported results.

A great deal has been written concerning the eradication of foci of infection as a curative measure in scleroderma. Obviously when a multiplicity of foci are present, the elimination of some of them will enable the patient better to tolerate those which remain. To me this is the explanation of many so-called cures, not only in scleroderma but in other diseases.

A change of climate, especially removal to a warmer climate, is of temporary benefit, as is dietary regulation. All symptomatic treatment may be helpful, but the results are always short-lived and the recalcitrance of the disease promptly becomes evident again.

The contributions of Leriche and his co-workers<sup>8</sup> in the field of surgical therapy bid fair to revolutionize the treatment of scleroderma. The remarkable results which have been achieved in the Strasbourg clinic indicate that experience and skill underlie them. Because Dr. DeBakey has worked with Leriche it is unnecessary for me to discuss this phase of therapy, except to say that I have been most impressed with his and Dr. Ochsner's results. In such work as theirs seems to lie the chief hope for patients suffering with scleroderma.

#### SUMMARY

1. Scleroderma may be classified clinically as circumscribed (*morphea*), diffuse, sclerodactylia, and white spot disease.

2. The etiology remains unknown, though dysfunction of the parathyroid glands is the most reasonable hypothesis, perhaps with an associated neurologic basis.

3. The histopathology, clinical manifestations, and symptomatology of the various forms are discussed.

4. The typical manifestations of the disease are readily diagnosed. Less typical forms must be differentiated from many other dermatologic states and from diseases with dermatologic complications.

5. Therapy is still unsatisfactory, but surgery, as developed in the Leriche clinic, offers the most hopeful outlook.

#### REFERENCES

1. Boardman, W. P.: Scleroderma with special reference to its etiology and treatment, *Arch. Dermat. & Syphilol.*, 19:901, 1929.
2. Ormsby, O. S.: A Practical Treatise on Diseases of the Skin for the Use of Students and Practitioners, Ed. 5. Lea and Febiger, Philadelphia, 1937.
3. Pusey, W. A.: The Principles and Practice of Dermatology Designed for Students and Practitioners, Ed. 4. D. Appleton and Company, New York and London, 1926.
4. Sannicandro, G.: Sarkoide und sclerodermatige Tuberkulose mit symmetrischen Streifen an den Beinen, verbunden mit progressiver Sklerodermie, *Arch. f. Dermat. u. Syph.*, 175:623, 1937.
5. Milbradt, W.: Lupus erythematosus acutus und thrombopenische Purpura; zugleich Bemerkungen über das Blutbild beim Lupus erythematosus, *Dermat. Wehnschr.*, 105:997, 1937.
6. Sutton, R. L.: Diseases of the Skin, Ed. 8. C. V. Mosby Company, St. Louis, 1931.
7. Brooks, W. D. W.: Calcinosis, *Quart. J. Med.*, 3:293, 1934.
8. Leriche, R., Jung, A., and DeBakey, M.: The surgical treatment of scleroderma, *Surgery*, 1:6, 1937.

## ETIOLOGY AND ABNORMAL PHYSIOLOGY

GEORGE E. BURCH, M. D.†  
NEW ORLEANS

It is only within recent years that intensive studies have been directed toward the subject of peripheral vascular diseases. This has been partly due to the development of more accurate methods for studying peripheral vascular phenomena as well as the increase in the number of individuals suffering from these diseases since the span of human life has been extended. Of the peripheral vascular diseases, scleroderma has been interesting to physiologists and clinicians not only because of its peculiar clinical characteristics but also because of its rarity. Its incidence has been variously stated. It occurs approximately once out of every 8,000 general clinic patients, or once out of every 1,000 dermatologic patients.<sup>1</sup> The clinical syndromes, pathologic features, course, and other phases of scleroderma are fairly well known. On the other hand, its etiology, pathologic physiology and therapy are little understood. The discussion to follow is an attempt to evaluate the etiologic and physiologic aspects of the disease and to point out the value of objective methods in its study.

#### ETIOLOGY

As in all diseases of unknown etiology, innumerable factors have been advanced to explain the cause of scleroderma. A number of the more important factors concerned with the etiology of this disease will be discussed.

#### ENDOCRINE

Practically all of the glands of internal secretion have been considered a primary or contributing cause of scleroderma.

*Thyroid:* The thyroid was one of the earliest and most frequently accused of the endocrine glands.<sup>2</sup> The effects of the thyroid are not consistent, however. Hypofunction as well as hyperfunction have

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana, New Orleans, La.

been said to explain the relationship of thyroid dysfunction with the onset of scleroderma.<sup>3</sup> Osler<sup>4</sup> was not convinced that the eight patients he treated with thyroid extract were definitely benefited. Roques<sup>5</sup> collected from the literature 67 cases in which thyroid therapy was used, and found that four were cured, 32 benefited, and 31 unaffected. In 31 cases of diffuse scleroderma, it was found on physical examination that the thyroid was small or imperceptible in 14 instances, enlarged in eight and normal in nine. O'Leary and Nomland<sup>2</sup> failed to find a basal metabolic rate below normal in any of their cases of diffuse scleroderma. In seven cases there was evidence of hyperthyroidism and in one typical exophthalmic goiter. Castle<sup>6</sup>, in a study of the literature on the endocrine causation of scleroderma, was impressed by the frequency with which the thyroid appeared as a factor etiologically influencing scleroderma, although he thinks the other glands of internal secretion are significant factors as well. Again, as stated by Stokes in discussing Longcope's paper,<sup>7</sup> scleroderma is associated with either hypo- or hyperthyroidism. He doubts that thyroid extract is specific, but thinks it may be beneficial through the production of vasodilatation and flushing. Oliver and Lerman<sup>8</sup> also attribute the benefit obtained from thyroid therapy to its secondary effect of increasing the cutaneous circulation. Dercum<sup>9</sup> suggested that the improvement produced by thyroid is probably dependent upon its action on subcutaneous fat, since it materially hastens the atrophy and disappearance of this tissue in the atrophic stage of the disease. Brown, O'Leary and Adson<sup>10</sup> feel that the sclerosis found in the thyroid gland at necropsy is a systemic effect of the scleroderma rather than the cause of it. Aub et al,<sup>11</sup> found the thyroid gland to influence calcium metabolism and still not necessarily produce changes in serum calcium, and also found hypothyroidism to be associated with a decrease in the excretion of calcium and phosphorus. These findings would tend to support the thyroid rather than the para-

thyroid as the cause of the calcium and phosphorus findings reported in scleroderma. This is discussed more fully below.

The evidence in the literature is far from convincing that the thyroid gland is primarily associated with the cause of scleroderma. What little benefit is derived from the use of thyroid extract apparently originates in its secondary effects on the circulation and metabolic processes. Of course, it is indicated to remedy a thyroid dysfunction that may be present in a patient suffering from scleroderma.

*Parathyroid Glands and Calcium and Phosphorus Metabolism:* The reason for including calcium and phosphorus metabolism with the discussion of parathyroid dysfunction is self-evident. Like the thyroid, the parathyroids have been said to be responsible, at least in part, for scleroderma.<sup>8, 12-16</sup> Selye,<sup>17</sup> while studying the effects of parathyroid extract on rats, found that young suckling rats developed within a few days a specific skin disease, which, on more careful study, was found to simulate human scleroderma. Shelling, Asher and Jackson<sup>18</sup> produced skin changes similar to those described by Selye in suckling rats following injections of parathormone. Leriche, Jung and Sureyya by means of injections of parathyroid extract were able to produce in young pigs skin changes which histologically resembled very closely the findings in human scleroderma. They noted that the calcium content of the skin was doubled or trebled after two or three injections. Hueper,<sup>20</sup> on the other hand, was able to produce calcification in the viscera but not in the skin of dogs following the injection of parathyroid extract. Leriche and Jung<sup>15</sup> are convinced that hyperparathyroidism is the cause of scleroderma and, therefore, as a therapeutic procedure remove most of the parathyroid tissue in patients suffering with this disease. They state that in scleroderma the parathyroid glands are the primary, the bones the intermediate, and the skin the final site of the disturbance in the chain of disturbed function. Leriche and his associates consider the disturbed

calcium and phosphorus metabolism reported in scleroderma to be due to hyperfunction of these glands. Bernheim and Garlock<sup>14</sup> removed most of the parathyroid tissue in six patients with Raynaud's disease and scleroderma, and found hypertrophy of the glands in every instance. The glands removed from one patient with extensive scleroderma showed acute parathyroiditis with pronounced infiltration with polymorphonuclear leukocytes. These authors think it is often necessary to obtain many serum calcium and phosphorus determinations before evidence of parathyroid dysfunction can be detected. They also do not consider hypercalcemia and hypophosphatemia necessary for surgical attack on the parathyroids. Furthermore, they consider the disturbed calcium metabolism the cause for the underlying vasospasm in scleroderma. Garlock<sup>16</sup> attributes the spasm of Raynaud's disease, which often precedes sclerodermatous change, to disturbed calcium metabolism. Hypertrophy, hyperplasia and adenomata have been found in the parathyroid glands removed at operation.<sup>12, 14, 21</sup> These changes, however, are not consistently encountered. It is interesting to note that Ssamarin, quoted by Cornbleet and Struck,<sup>12</sup> reported several cases in which supposed parathyroid tissue removed at operation was shown by microscopic examination not to be parathyroid and yet the patients experienced results equal to those in patients from whom actual parathyroid tissue was removed.

It has been shown<sup>12, 13, 17, 19, 22, 23</sup> that there is deposited in the sclerodermatous skin an increased amount of calcium, while the serum calcium of the same patients has been found to be normal or elevated.<sup>12, 21, 24, 25</sup> The serum phosphorus is either normal or elevated rather than decreased, as would be expected in true hyperparathyroidism.<sup>12</sup> Again, the few studies on urinary output of calcium have shown it to be markedly decreased,<sup>12</sup> while the commonest finding in hyperparathyroidism has been a negative calcium balance. The two reported studies of calcium balance in scleroderma showed in one instance a posi-

tive balance, while in the other a positive balance was found only when calcinosis was present. These findings are in agreement with those of Cornbleet and Struck.<sup>12</sup> There has been no evidence of generalized decalcification of bone, as is expected in hyperparathyroidism.<sup>26</sup> Leriche and Jung<sup>15</sup> report decalcification of bone but only describe changes in those of the hands and arms of the involved parts. This may be due to disuse and the local vascular changes and not to any generalized disturbance, as occurs in hyperparathyroidism.

Mamon<sup>27</sup> presents evidence supporting hypoparathyroidism in scleroderma. He attributes the tetany often associated with scleroderma, as well as other findings, to a low blood calcium and hypoparathyroidism. He was able to find in the literature reports of patients who developed scleroderma and signs of tetany following thyroidectomy. The author does believe, however, that there are cases in which evidence of hyperparathyroidism may be present. Such cases, he feels, deserve parathyroidectomy.

The association of calcinosis with scleroderma is well known.<sup>12, 22, 26, 28</sup> It is not known whether this calcification is primarily of parathyroid dysfunction, as discussed above, or of secondary origin unrelated to the parathyroid. Brooks<sup>22</sup> described a patient with calcinosis who showed evidence of calcium and phosphorus retention with normal absorption of these elements and abnormally high levels of serum calcium, plasma inorganic phosphorus and plasma phosphatase. He also described a patient with scleroderma in whom all these substances were normal. Brooks concludes that "in calcinosis a local tissue change, of as yet undetermined kind, results in localized fibrous tissue damage, and that when calcification occurs in these areas there may be an accompanying abnormality of calcium and potassium metabolism. The type of lesion present in scleroderma does not necessarily produce changes which result in abnormality in the metabolism of calcium and phosphorus." Brooks' paper is quite an extensive review of calcinosis.

Cornbleet and Struck<sup>12</sup> offer the hypothesis that scleroderma is initially due to a toxin which injures the collagen synctium and that these injured tissues secondarily take up calcium. This deposition of calcium may account for the positive balance frequently seen in scleroderma. With massive doses of Vitamin D, these observers were able to increase the excretion of calcium and phosphorus in the urine, a negative balance produced apparently at the expense of the calcium deposited in the collagen and muscle. Acid drugs<sup>29</sup> and ketogenic diets<sup>28</sup> have also been employed to mobilize the deposited calcium, as well as to prevent a further deposition.

Durham<sup>26</sup> states that there are several mechanisms through which calcification might conceivably occur in association with scleroderma: (1) As a result of parathyroid dysfunction; (2) as metastatic calcification; (3) by simple chemical precipitation, and (4) by means of a physicochemical disturbance in which colloidal proteins play a role. He points out the fact that "in experimental calcification produced by injecting parathyroid hormone, the deposits occurred most frequently in the excretory organs, the lungs, stomach and kidneys. The tissues of these organs are more alkaline because of their continuous excretion of acids. As the secretion from sudoriparous glands is normally neutral or slightly alkaline, and since the interglandular tissues around the sweat glands are slightly acid after the alkaline secretion, the occurrence of deposits of calcium in the skin or subcutaneous tissue as a result of parathyroid disturbances does not parallel experimental observations. Histologically, too, there is a difference. In the experimental type, the deposits of calcium were found in the interglandular tissue around the excreting glands, whereas in the reported cases with cutaneous and subcutaneous involvement, the deposits were not in the interglandular tissue, but were scattered diffusely throughout the connective tissue." Furthermore, the parathyroid glands are usually histologically normal. Durham again points out that rarefaction of skeletal bones

is usually a constant occurrence in so-called metastatic calcification. In scleroderma with calcinosis there was no rarefaction except osteoporosis resulting from disuse. There was no oversaturation of the blood with calcium as is thought to occur in the metastatic variety of calcinosis. Trauma is usually necessary for this type of calcification. He concludes that it is, therefore, unlikely that the mechanism of calcification with scleroderma is similar to metastatic calcification. Durham finds the evidence insufficient to explain the calcinosis in scleroderma on the basis of local alterations or deranged inorganic metabolism, although, as in other types of pathologic calcification, the colloidal proteins are thought to play a prominent role. He feels that local inflammations are usually not a causative factor. Durham, as well as Pautrier,<sup>24</sup> has suggested the possibility that calcium plays an important role in physicochemical phenomena in the interstitial colloids affecting the albuminous and mineral substances. The exact nature of this remains obscure in scleroderma.

*Pituitary Gland:* This gland has often been blamed for scleroderma,<sup>3, 6, 8, 30, 31</sup> but like the other endocrine glands there have been no consistent abnormal findings, clinical or histologic. Oliver and Lerman<sup>8</sup> state that the response of scleroderma to injections of posterior pituitary preparations is probably the result of peripheral circulatory effects rather than that of substitution. They treated 20 patients with scleroderma of different types with daily injections of posterior pituitary. In three cases of morphea some, or all, of the lesions disappeared completely, leaving only slight pigmentation, while only varying degrees of improvement were obtained in others. In two cases of the band-like type improvement was marked. Five patients with sclerodactylia associated with scleroderma of the face, arms, hands and neck, were definitely improved, while in three other similar cases some improvement was noted. The remainder of the 20 patients were helped by the injection. Schwartz, in discussing Fox's paper,<sup>31</sup> said he obtained good results with

the use of pituitary extract in six patients with scleroderma and an increased glucose tolerance.

*The Other Endocrine Glands:* The adrenals,<sup>2, 3, 5, 6, 32, 33</sup> gonads,<sup>5, 8, 34</sup> islands of Langerhans,<sup>35</sup> and thymus<sup>22</sup> have been blamed at various times for scleroderma. The pigmentation in scleroderma has been used as evidence of adrenal dysfunction.<sup>2</sup> Brooks<sup>22</sup> mentions the fact that the thymus and gonads influence calcium metabolism and in that way may affect calcinosis in scleroderma. Roederer<sup>36</sup> was able to produce marked improvement in scleroderma in an 18 year old female by using pluri-glandular organotherapy. More general discussions on the subject of endocrine dysfunction in scleroderma can be found in the papers by Boardman,<sup>37</sup> Foerster,<sup>30</sup> Roques,<sup>5</sup> Howell<sup>1</sup> and Castle.<sup>6</sup> There is not sufficient evidence to support seriously any one or group of these endocrine glands as the cause for scleroderma. The results reported might be only coincidental, since remissions and exacerbations are so characteristic of the disease.

#### THE NERVOUS SYSTEM

*Sympathetic Nervous System:* The frequently symmetrical distribution of the lesions of scleroderma and sclerodactylia, especially in the upper extremities, prompted a suspicion many years ago that the nervous system might be responsible for the disease.<sup>2, 3, 13, 37, 38</sup> Again, the frequent association of scleroderma with Raynaud's disease, which has been considered by some to be due, at least in part, to vasomotor phenomena, is used as evidence for sympathetic dysfunction in scleroderma.<sup>2, 3, 13, 39, 40</sup> The beneficial results obtained by some investigators following interruption of the sympathetic pathways apparently lends further support to the idea that malfunction of the sympathetic nervous system contributes to the cause of scleroderma.<sup>13, 41, 42</sup> Acetyl-beta-methylcholine chloride (mecholy) iontophoresis has been used in scleroderma<sup>43</sup> with the idea of relieving vasospasm, which is said to be abnormally increased. Certain abnormal histologic changes have been described for the

sympathetic nervous system, such as sympathetic ganglia, dorsal root nerves, anterior horn of the cord and the like.<sup>3</sup> The studies of Brown et al.<sup>10</sup> on the effect of temperature on the arterioles and capillaries of the fingers in scleroderma suggest increased vasospasm. From their studies they felt that sympathetic impulses should be released in an attempt to curtail this vasospasm. Again, the high incidence of scleroderma in patients with neuroses suggests a sympathetic relationship.<sup>1, 2, 8</sup> As early as 1896, Dercum<sup>9</sup> pointed out the vagueness of the term "vasomotor neurosis." As mentioned by Howell,<sup>1</sup> the absence of frequent clinical manifestations of involvement of thoracic and abdominal sympathetics in scleroderma is somewhat difficult to understand in a disease that is due to sympathetic dysfunction. It is known, however, that some of the vertebral ganglia send all, or nearly all, their fibers to the body wall or limbs, and that some send all their fibers to the viscera. This may explain these observations. The absence of clinical manifestations of thoracic and abdominal sympathetic dysfunction does not necessarily mean that such changes do not occur, for as shown by Longcope<sup>7</sup> many patients with scleroderma have histologic changes in many of the visceral organs.

A more thorough discussion of this subject will be presented under Abnormal Physiology.

*Central Nervous System:* Histologic changes in the central nervous system and the spinal nerves have been described.<sup>3, 8, 44, 45</sup> Murray-Will,<sup>46</sup> in a study of the literature, found that the spinal fluid at times showed evidence of changes, such as an increase in the number of lymphocytes and an increase in albumin. Guillain et al.<sup>47</sup> found a non-luetic colloidal gold curve, a negative Wassermann, and an increase in the number of lymphocytes and in the amount of albumin in the spinal fluid of a patient with scleroderma. The "rheumatic" or neuralgic pain, itching, tingling, numbness and the like, so frequently observed at the onset of scleroderma, suggest a neurogenic aspect of the disease. This, however,



might be only a manifestation of neurologic effects of some other primary factor. Howell<sup>1</sup> was able to find a report of degenerative changes in the cells of the intermedio-lateral tract. Incidentally, sympathetic fibers arise from these same cells. Atrophic degeneration of the motor cells of the anterior horn was also noted. The patient had atrophy of the muscles previously innervated by these anterior cells. In another patient with sclerodermic hemiatrophy lesions were found in the anterior horn. Lesions around the ependyma have also been described. The frequent association of scleroderma and hemiatrophy suggests a nervous factor in the disease.<sup>39</sup> There is not sufficient evidence at present to relate scleroderma etiologically to lesions in the central nervous system.

#### VASCULAR DISTURBANCES

Most of the evidence favoring a vascular disturbance as an etiologic basis for scleroderma is founded upon observations of vascular physiology in involved areas. This will be discussed more thoroughly later on. However, a few observations which are of etiologic significance will be discussed at present.

It is a well known fact that scleroderma frequently follows Raynaud's disease, a condition with known vascular disturbances.<sup>24, 48, 49</sup> The frequent association of these two conditions suggested a vascular basis for the former disease as well. Furthermore, histologic studies of small arteries in sclerodermatous skin usually show an endarteritis with varying degrees of intimal proliferation and perivascular, as well as diffuse, infiltration of lymphocytes.<sup>1, 2, 3, 10, 44, 50</sup> Studies on the capillaries of the nail bed showed definite anatomic and functional disturbances, such as decrease in the number, size, shape, tone, and circulation rate of blood through these vessels.<sup>10, 51</sup> Lewis and Landis<sup>50</sup> have found experimental evidence of decreased arterial flow and increased arterial spasm in the type of scleroderma that follows Raynaud's phenomena. They have shown rather definitely that the factors responsible for this reduced flow are purely local phenomena

and are not related to nervous impulses coursing through the central nervous system and down main nerve trunks. They were unable to find any evidence of abnormal sympathetic tone. The distribution of the lesions is also compatible with primary vascular disturbances, as well as with nervous disturbances. The histamine wheal test is definitely abnormal in scleroderma and is only slightly changed by sympathetic operation.<sup>42, 52</sup> Evidence for the above statement will be discussed below under Abnormal Physiology.

If abnormal vascular functions are responsible for scleroderma, the primary factor or factors responsible for the vascular pathology remain to be found.

#### MISCELLANEOUS CAUSES

Among the many causes advanced to explain the etiology of scleroderma, chronic arsenic poisoning, syphilis, nervous shock, trauma, exposure, infections of various kinds (measles, tonsillitis, scarlet fever, diphtheria, pneumonia, and influenza), and pregnancy are among the most common.<sup>2, 37, 39, 46, 53-57</sup> Most of these factors have not been proved to cause scleroderma, or even to be etiologically related. Some are probably no more than coincidental factors. Boardman<sup>37</sup> has written an extensive review on the etiology and treatment of scleroderma, and is recommended for more thorough discussion of these subjects. His bibliography is quite complete.

Moench<sup>53</sup> reported a patient with arsenic poisoning, scleroderma and neuritis. Arsenic was found to be present in high quantities in the urine. The use of sodium thio-sulfate increased the symptoms of neuritis as well as the elimination of arsenic. Ayres<sup>53</sup> reported three patients with arsenic in the urine and a history of contact with arsenic who also had sclerodermatous changes. No other abnormal findings were detected. He pointed out the fact that 43 per cent of 48 specimens of urine selected at random contained arsenic, and suggested that to be of any significance arsenic would have to be present in the urine of sclerodermatous patients in a much higher concentration. This point still remains unset-

tled. In individual cases, scleroderma and chronic arsenic poisoning possess many symptoms in common, such as neuritic manifestations, pigmentation, cutaneous alterations of various kinds, and loss of weight. Again, many of these symptoms may be lacking in cases of well advanced scleroderma. Brooke and Roberts<sup>54</sup> and Barendt<sup>55</sup> described skin changes in many individuals following arsenic poisoning developed from drinking beer containing large amounts of arsenic. These skin changes, however, appeared to be more like those described in arsenical dermatitis than those of scleroderma, although there were many similar manifestations, such as erythema, edema, dirty-brown to coppery discoloration, hyperkeratosis, desquamation and paresthesias. The relationship of arsenic poisoning to scleroderma needs further study, and at present one cannot conclude that the latter condition is a manifestation of the former.

Syphilis has been blamed at some time or another for most of the diseases which possess an obscure etiology and, as one would expect, it has been said to cause scleroderma.<sup>2, 46</sup> Murray-Will<sup>46</sup> reported a patient with scleroderma in whom a positive blood Wassermann was found, and who failed to improve under the ordinary methods of scleroderma therapy, but improved following antiluetic therapy. He reviewed the literature with this observation in mind and found further evidence to support the association of syphilis with morphea, Raynaud's disease and sclerodactylia. However, most of the patients with scleroderma reported in the literature have no evidence of syphilis, and at present there are not sufficient data to indicate more than a coincidental relationship of syphilis to scleroderma.

The generalized nature of the disease, the constitutional manifestations, such as fever, malaise, weakness, and metabolic changes, which often usher in diffuse scleroderma, suggest a toxic or infectious basis for the disease. Leprosy, once thought to have a possible relationship with scleroderma, has been shown to be unrelated, although scleroderma-like lesions have been described in leprosy.<sup>59</sup>

The other factors advanced to explain the cause of scleroderma lack sufficient proof to justify their being considered more than aggravating factors. It is well to eliminate such influences when treating a patient with scleroderma as they may have some detrimental effect, if not on the sclerodermatous processes per se, perhaps constitutionally.

#### ABNORMAL PHYSIOLOGY

Studies of functional changes in parts affected with scleroderma are wanting. In recent years definite promising advances have been made in that phase of the disease. Before attempting to discuss these observations, it is necessary, as will be realized later, to present a classification of scleroderma, a number of which have been advanced. The one presented by O'Leary and Nomland<sup>2</sup> is as good as any. It is:

1. The diffuse or generalized type.
2. The localized type:
  - a. Morphea.
  - b. Scleroderma in bands.
  - c. Guttate scleroderma.

The diffuse or generalized type frequently follows Raynaud's phenomena, but not necessarily.<sup>2, 49, 51</sup> It has been shown<sup>50, 51</sup> to be closely related to this condition as far as the vascular characteristics are concerned. Again, this type has been the one most frequently studied. When the fingers are involved by the sclerodermatous changes the condition is referred to as sclerodactylia. There are various opinions as to whether or not morphea and diffuse scleroderma are related and should be classified together.<sup>6</sup> However, the majority of evidence favors a relationship and a grouping together.<sup>37</sup>

Brown and O'Leary<sup>51</sup> studied the capillaries of the finger nail bed in patients with scleroderma and found definite abnormal changes which were similar in many respects to those found in patients with Raynaud's disease alone.<sup>60</sup> They studied five patients of three groups: (1) The diffuse, primary, progressive scleroderma; (2) the borderline, or secondary, vasomotor type, and (3) the localized form, or morphea. The first two groups are of the diffuse or gen-

eralized type shown in the classification above. In the first group the most striking finding was the presence of large loops or so-called giant capillaries. The capillaries were markedly reduced in number, there being only one-third the normal number. The decrease in number of loops "seemed to stand in direct relationship to the degree of trophic disturbance." The diameters of the arterial and venous portions of the loops were increased and were at times large enough to obliterate the space between the two limbs. Temperature changes and mechanical irritation failed to produce detectable changes in the caliber of these vessels. The capillary outline was "usually frayed and indistinct, giving the loops a feathery appearance." This was due to the decreased transparency of the skin as a result of the collagenous hypertrophy. In the vasomotor type, or second group, the capillaries were found to present an entirely different picture, sufficiently different to distinguish this group from the first. The capillaries resemble those found in Raynaud's disease.<sup>60</sup> They were decreased in number but preserved the usual capillary pattern; large giant loops were occasionally seen, while the large shapeless loops described in the first group were not seen. Decreased tonus with dilatation of the arterial and venous portions was noted. The loops were slightly longer than normal. The flow through these capillaries was very sluggish and many loops showed stasis with cyanosis. As noted in Raynaud's disease<sup>60</sup> during the pallor or the syncope phase, contracted, partially filled loops were present and many were invisible. "In the asphyxia phase, clumps of cells were seen to enter the loops slowly from the arterial and venous sides; then complete stasis, increasing cyanosis and dilatation of the loops developed." With reestablishment of flow and the presence of oxyhemoglobin the rubor phase developed.

The authors said little about the changes in morphea. Brown and O'Leary were unable to state whether the capillary changes were primary or secondary causes of the skin changes. They likewise were unable to evaluate the effect of the fibrotic change of the corium on the vessels. They

felt that the stasis and agglutination phenomena in the capillaries increased the capillary permeability, which in turn was responsible for edema. Pautrier and Ullmo<sup>61</sup> found irregularities in the capillaries and a marked decrease in the number as well as in the diameters of the capillaries in scleroderma. Their findings as a whole agreed with those of Brown and O'Leary. These findings indicate a definite reduction in the volume of blood flow to the part.

Lewis and Landis<sup>50</sup> and Lewis and Kerr<sup>48</sup> reported a group of very interesting studies on Raynaud's disease with and Raynaud's disease without scleroderma, respectively, which tended to show that in Raynaud's disease with or without scleroderma there were local organic and functional disturbances in the small peripheral arteries. These disturbances were apparently not influenced by the presence or absence of scleroderma. They noted that there was an optimum temperature range ( $10^{\circ}$ - $22^{\circ}$ ) at which asphyxia and cyanosis could be produced in these patients.<sup>48</sup> Lewis and Landis<sup>50</sup> found that by cooling the whole hand in water the characteristic asphyxial change was produced from the finger tip proximally; cooling of the finger tip alone produced no such change. Again, heating of the finger tip after the hand had been previously made cyanotic produced no change, while submerging the hand and fingers except the tips promptly relieved the spasm, and the whole hand, tips and all, became pink. They also noted that if the ulnar side of the hand were immersed in cool water that portion of the hand and the submerged fingers became cyanotic while the fingers and part of the hand above water remained pink. If a patient had cyanosis of both hands from cooling, and the wrist, palm and thumb of the left hand were submerged in warm water ( $35^{\circ}$  C.), and the tips of the fingers were left protruding out of the water, the whole submerged portion and protruding finger tips became pink. Now, if at the same time only the tips of the fingers of the equally cyanotic right hand were submerged in water at  $35^{\circ}$  C., no change occurred, not even for the submerged tips. Lewis and Landis further noted that

ulner nerve anesthesia did not alter the experiments in any part of the hand, not even the anesthetic fifth finger. All of these findings were essentially the same in the hands and finger tips of patients with Raynaud's disease alone.<sup>48</sup> The authors state that "the evidence that has now been brought together is sufficient to show beyond any reasonable doubt that in the type of case studied, in which circulatory changes in the finger are combined not only with local but also with distant scleroderma, the circulatory disturbances arise, as they do in the common type of Raynaud's malady . . . , from a fault in the vessels themselves." These studies showed the disturbance to be local, that is in the digital arteries. Their studies further showed that patients with mild organic change were not very apt to develop permanent spasm, while those with more severe organic changes experienced more permanent spasm, the spasm being reinforced by local, structural changes.

In discussing the morbid changes, Lewis and Landis<sup>50</sup> state (quoting them almost verbatim) that in the case of the more severe forms of Raynaud's disease, those in which evidence of structural disease of the arteries is obtainable, tests show that closure of the vessels is brought about easily and over an unusually wide range of temperature. It is quite possible, if it is not probable, that the impression of unusual susceptibility to spasm in the digital vessels of these patients is in part due to the vessels' closing prematurely owing to the thickness of their intimal lining. (The reviewer might add that with intimal proliferation and narrowing of the lumen of the vessel, the surface area of the intima is decreased, and without change in blood pressure the intravascular force exerted on the wall of the vessel is reduced; therefore, the same normal amount of nervous stimulus and force of smooth muscle contraction of the media will be more effective in overcoming the intravascular force and thereby more effectively produce constriction of the vessel. This probably would result in a greater degree of closure than would be expected under ordinary circumstances. Again, with the irregularities in location and variations

in degrees of intimal thickening, one wonders to what extent the Bernoulli phenomenon might mechanically affect the behavior of these diseased vessels and the volume of blood flow through them.) Just in so far as this factor enters into play, Raynaud's disease in its severer forms must be regarded as a structural rather than a spasmodic arterial disease. It is not suggested, however, that it is right to regard the disease as ever purely structural, but only that structure change may play some part in bringing the vessels, that is the seat of spasm, to a state of complete obliteration. These patients behave in a very different way from patients with thrombotic disease of the digital vessels occurring from time to time in thrombo-angiitis obliterans and senile arteritis, although the disease in such vessels, displayed by the authors'<sup>50</sup> inability to dilate them by heat, is as advanced or more advanced than that in scleroderma. It is not the habit of fingers so affected to become fully livid, white or numb owing to prolonged arrest of the circulation, on exposure to cold atmospheres, and spasm cannot be induced, as it can in Raynaud's malady, in different parts of the digital vessel at will by suitably confining the action of cold to different regions.

Thus, while the severer, like the milder, case of Raynaud's disease should continue to be regarded as essentially a spasmodic affection, yet it is to be recognized that structural change may contribute to the circulatory defect. It contributes by failing to permit the vessel to open to its fullest when heated; it contributes, as previously stated, by bringing the vessel to premature closure when the part is cooled.

Prinzmetal<sup>40</sup> studied the effect of the tight atrophic skin on the circulation in the digits of subjects suffering from sclerodactylia. He found that the circulation to the digits was further impaired by the tight inelastic skin and subcutaneous tissues which contract down around the underlying blood vessels further diminishing the blood flow to the part. His studies suggest that the atrophy of the terminal phalanx in sclerodactylia is probably due to the pressure by the tight skin. He found that sympathect-

tomy raised the temperature of the fingers of normal subjects and subjects without sclerodactylia, but produced only a slight or no rise in temperature in patients with sclerodactylia. The skin prevents the vessels from dilating once sympathetic tone is released. Relaxation of the skin in one patient resulted in improvement of the circulation. The volume of pulsations in the fingers was smaller in subjects with sclerodactylia than in those without. Vasodilator impulses by the Landis heat test produced little change in temperature. Histamine also failed to produce a rise in temperature in these patients. By placing a tight finger cot on normal fingers Prinzmetal was able more or less to reproduce the conditions encountered in sclerodactylia. He suggests that these patients need a procedure that would relax this tight skin in order to improve satisfactorily with treatment.

Turner, Burch and Sodeman<sup>62</sup> found the pulse volume and total blood volume in the finger tip affected with Raynaud's disease to be definitely reduced. Johnson and Hedges<sup>63</sup> also found a reduced volume of pulsations in the finger tip involved with scleroderma. Sodeman and Burch<sup>64</sup> found the tissue pressure to be markedly elevated in subjects suffering from scleroderma. These latter studies gave direct evidence for a mechanism, that is mechanical pressure, whereby vascular changes may be secondary to the sclerodermatous process, and as well supported Prinzmetal's contention that this contributes in part to the disturbed vascular function. These observers<sup>64</sup> state that "with tissue pressures of the magnitude which we have found, which have exceeded the normal venular and capillary pressures, one would expect a collapse of these vessels. Permanent collapse would be prevented by a building up of the venular and capillary pressures from the arteriolar side, provided no collateral circulation were possible.

"It is conceivable that in a localized area, if the process were severe, and if a collateral circulation were adequate, a rise in tissue pressure, exceeding the venous pressure of the adjoining tissues, could result in

localized ischemia and atrophy. Proximal to the involved areas in which the tissue pressure exceeds the normal venous pressure, the venous pressure would fall to its usual normal value. This is exemplified by the conditions existing when a pneumatic cuff about the arm is inflated to a value exceeding the normal venous pressure and less than diastolic blood pressure. In such an instance the venous pressure distal to the cuff will build up and equal the cuff pressure to reestablish the circulation, while the venous pressure proximal to the cuff is unaffected. As a routine measure, venous pressure measurements are difficult in these patients because of the character of the skin and the small size of the veins in the involved areas. Fortunately, however, a small vein was accidentally entered while taking the tissue pressure in the dorsum of the forearm in one of our patients. The venous pressure in this vein at heart level was 228 mm. of water, while the pressure at heart level in the uninvolved antecubital space was 86 mm. of water." These same observers also noted that with the development of edema in sclerodermatous areas the tissue pressure increased further and as the edema subsided the tissue pressure fell.<sup>64, 65</sup> The hardness of the skin and subcutaneous tissues in scleroderma was further determined objectively by Burch and Sodeman<sup>66</sup> with the use of a specially constructed tonometer for the finger tip which makes it possible to follow changes in that region. With the use of a "distensiometer" Sodeman and Burch<sup>67</sup> were able to express in a quantitative fashion the tightness or "stretchability" of the human skin. The skin of scleroderma was found to be, relatively speaking, extremely non-distensible. This lends further support to the discussions above. These quantitative apparatus—tissue pressure apparatus, tonometer, and distensiometer—are steps toward the development of more quantitative means for measuring changes in vascular states. These methods can be applied in clinics and laboratories and serve a useful purpose by more accurately evaluating changes as well as methods of treatment in

scleroderma than in the past, when subjective methods were employed almost entirely.

The studies of King,<sup>52</sup> and Caldwell and Mayo<sup>42</sup> in scleroderma with the histamine wheal, in which the triple response of Lewis was found to be absent, suggest impairment of blood flow due to disturbances in the small arterial vessels.

It appears, therefore, that in scleroderma the vascular pathology, endarteritis and intimal thickening, of the small arteries, decrease in the number of capillaries, the contracting fibrous subcutaneous tissues, and the possibly increased sympathetic tone, all tend to impair the circulation to the affected part.

The temperature of fingers affected with sclerodactylia is lower than that of normal or unaffected fingers and tends to remain below room temperature.<sup>10, 40</sup> The hands of these patients are cold and clammy and have a cadaveric appearance. Brown, O'Leary and Adson,<sup>10</sup> using the Stewart and Kegerreis calorimeter, found the heat loss in these involved areas to be markedly reduced below normal, suggesting a definite reduction in blood flow. They found no significant differences for the various forms of scleroderma. These same observers applied Brown's method for determining the "vasomotor index"<sup>68</sup> to patients with scleroderma. They found that there was less evidence of vasomotor spasm in patients with scleroderma without associated Raynaud's disease than in those with associated Raynaud's disease. They attribute this to the additional factor of occlusive disease of the smaller arterioles. They found that by lowering the room temperature they could produce complete cessation of blood flow in the capillaries, which they attribute to closure of the arterioles due to an abnormal degree of spasm.

In Raynaud's disease with scleroderma the syncope, asphyxia, small pulse volume in the involved area, and other vascular phenomena, as well as histologic changes in the various centers of the sympathetic nervous system, pathways and the like, sug-

gest that in scleroderma there may be an associated sympathetic disturbance. As discussed previously, most of these findings can be explained, however, on the basis of localized organic vascular pathology. Adson, O'Leary and Brown<sup>41</sup> and Leriche and his associates<sup>13</sup> have found that resection of sympathetic ganglia and trunks, in an attempt to relieve an excessive amount of vasospasm, has benefited patients suffering with scleroderma. Most of the evidence for increased amount of sympathetic tone, independent of localized vascular disease in scleroderma, is based upon the relationship of scleroderma to Raynaud's disease<sup>2</sup> and the beneficial results reported following the interruption of sympathetic nervous pathways. As stated by Lewis and Kerr,<sup>48</sup> these operations remove the vasoconstrictor tone and the results obtained following such operations are just what would be expected when normal vasoconstrictor tone is removed. They can see no reason to conclude that such observations constitute evidence of abnormal vasoconstrictor tone. The studies of Lewis and Kerr<sup>48</sup> and Lewis and Landis,<sup>50</sup> previously discussed, tend to show that the abnormal vascular phenomena present in Raynaud's disease with or without scleroderma are the result of local morbid arterial changes and are independent of sympathetic tone.

Certain metabolic, including muscle metabolism,<sup>69</sup> and chemical changes have been studied sporadically but need not be discussed here because their significance is not known. Some of these pathologic physiologic aspects of calcium and phosphorus metabolism and the endocrines have been discussed and need not be repeated here.

#### SUMMARY AND CONCLUSIONS

Many factors have been said to cause scleroderma. Of these, hyperfunction of the parathyroids, hypofunction of the thyroid, increased sympathetic tone, and local peripheral vascular disease have been most seriously considered. There is not sufficient evidence at present properly to evaluate the relative significance of these factors.

Studies of the disturbed physiology have showed evidence of abnormal calcium and phosphorus metabolism, decreased blood supply to the involved area and also increased vasospasm, which is most probably localized to the small peripheral arteries. The decreased blood flow to the involved part is due, at least in part, to intimal thickening of the small arteries, decrease in number and abnormal function of the capillaries, and to the increased local vasospasm.

A number of methods for quantitatively following the progress of scleroderma with or without treatment were discussed. The value of such quantitative measurements made at frequent intervals in an attempt to evaluate therapeutic procedures was mentioned.

## REFERENCES

- Howell, A.: Diffuse scleroderma, *Practitioner*, 93:604, 1914.
- O'Leary, P. A. and Nomland, R.: A clinical study of one hundred and three cases of scleroderma, *Am. J. Med. Sci.*, 180:95, 1930.
- Rake, G.: On the pathology and pathogenesis of scleroderma, *Bull. Johns Hopkins Hosp.*, 48:212, 1931.
- Osler, W.: On diffuse scleroderma, with special reference to diagnosis and to the use of thyroid gland extract, *J. Cutan. & Genito-Urin. Dis.*, 16:49 and 127, 1898.
- Roques, E.: Le traitement opothérapique de la sclérodémie, *Ann. de dermat. et de syph.*, 11:383, 1910.
- Castle, W. F.: The endocrine causation of scleroderma, including morphea, *British J. Dermat. & Syph.*, 35:255 and 303, 1923.
- Longcope, W. T.: Hypoglycemia in scleroderma, *J. A. M. A.*, 90:1, 1928.
- Oliver, E. L. and Lerman, J.: Scleroderma treated with injection of posterior pituitary extract, *Arch. Dermat. & Syph.*, 34:469, 1936.
- Dercum, F. X.: Scleroderma, *J. Nerv. & Ment. Dis.*, 21:431, 1896.
- Brown, G. E., O'Leary, P. A. and Adson, A. W.: Diagnostic and physiologic studies in certain forms of scleroderma, *Ann. Int. Med.*, 4:531, 1930.
- Aub, J. C., Bauer, W., Heath, C. and Ropes, M.: Studies of calcium and phosphorus metabolism. III. The effects of the thyroid hormone and thyroid disease, *J. Clin. Investigation*, 7:97, 1929.
- Cornbleet, T. Struck, H. C.: Calcium metabolism in scleroderma, *Arch. Dermat. & Syph.*, 35:188, 1937.
- Leriche, R., Jung, A. and DeBakey, M. M.: The surgical treatment of scleroderma. Rationale of sympathectomy and parathyroidectomy, *Surgery*, 1:6, 1937.
- Bernheim, A. R. and Garlock, J. H.: Parathyroidectomy for Raynaud's disease and scleroderma, *Ann. Surg.*, 101:1012, 1935.
- Leriche, R. and Jung, A.: Recherche sur la nature de la sclérodémie. Les traductions tissulaires de l'hyperparathyroïdisme dans la sclérodémie, *Presse méd.*, 43:1361, 1935.
- Garlock, J. H.: Parathyroidectomy for Raynaud's disease and scleroderma, *Surg. Clin. North America*, 16:771, 1936.
- Selye, H.: A condition simulating human scleroderma in rats injected with parathyroid hormone, *J. A. M. A.*, 99:108, 1932.
- Shelling, D. H., Asher, D. E. and Jackson, D. A.: Calcium and phosphorus studies. VII. The effects of variations in dosage of parathormone and of calcium and phosphorus in the diet on the concentration of calcium and inorganic phosphorus in the serum and on the histology and chemical composition of the bones of rats, *Bull. Johns Hopkins Hosp.*, 53:348, 1933.
- Leriche, R., Jung, A. and Sureyya, C.: La peau dans l'hyperparathyroïdisme expérimental, étude de la sclérodémie expérimentale, *Presse méd.*, 43:777, 1935.
- Hueper, W.: Metastatic calcifications in the organs of dogs after injection of parathyroid extract, *Arch. Path. & Lab. Med.*, 3:14, 1927.
- Durham, R. H.: A case of scleroderma with extensive subcutaneous periarticular and vascular calcification, *Ann. Clin. Med.*, 5:679, 1926.
- Brooks, W. D. W.: Calcinosis, *Quart. J. Med.*, 3:293, 1934.
- Gordon, H.: Diffuse scleroderma, with case report and autopsy findings, *Ann. Int. Med.*, 2:1309, 1929.
- Pautrier, L. M.: Sclérodémies, chéloïdes et calcémie, *Presse méd.*, 41:345, 1933.
- Gitlow, S. and Steiner, S.: Scleroderma with special reference to the blood chemistry, *Arch. Dermat. & Syph.*, 9:549, 1924.
- Durham, R. H.: Scleroderma and calcinosis, *Arch. Int. Med.*, 42:467, 1928.
- Mamon, H.: Sclérodémie et parathyroïdes, *Gaz. d. Hôp.*, 105:375, 1932.
- Kennedy, R. L. J.: Calcinosis and scleroderma in a child treated by ketogenic diet, *Med. Clin. North America*, 12:1655, 1929.
- Leriche, R. and Jung, A.: Le chlorure d'ammonium dans la thérapeutique de la sclérodémie, *Presse méd.*, 41:1041, 1933.
- Foerster, O. H.: The relation of internal secretions to cutaneous disease, *J. Cutan. Dis.*, 34:1, 1916.
- Fox, G. H.: Morphea, *J. Cutan. Dis.*, 35:256, 1917.
- Winfield, J. M.: A case of scleroderma improved under the use of desiccated suprarenal gland, *J. Cutan. Dis.*, 22:586, 1904.
- Millard, M.: Sclérodémie améliorée par l'arrhénal, *Bull. et mém. Soc. méd. d. hôp. d. Paris*, 22:163, 1905.
- Jeanselme and Buinier: Sclérodémie en plaques avec dyschromie pigmentaire symétrique, *Bull. Soc. franç. de dermat. et syph.*, 36:704, 1926.
- Wahl, E. F.: Scleroderma. Insulin therapy, *J. Med. Assn. Georgia*, 19:285, 1930.
- Roederer, M. J.: Sclérodémie en plaques améliorée par l'opothérapie pluriglandulaire, *Bull. Soc. franç. de dermat. et syph.*, 36:231, 1926.
- Boardman, W. P.: Scleroderma, with special reference to its etiology and treatment, *Arch. Dermat. & Syph.*, 19:901, 1929.
- Fagge, C. H.: Keloid, scleriosis, morphea, and some allied affections, *Guy's Hosp. Repts.*, Third series, 13:255, 1868.
- McCrackin, R. H.: Scleroderma. Report of a case with scleroderma and hemiatrophy, *J. Pediat.*, 9:173, 1936.
- Prinzmetal, M.: Studies of the mechanism of circulatory insufficiency in Raynaud's disease in association with sclerodactylia, *Arch. Int. Med.*, 58:309, 1936.
- Adson, A. W., O'Leary, P. A. and Brown, G. E.: Surgical treatment of vasospastic types of scleroderma by resection of sympathetic ganglia and trunks, *Ann. Int. Med.*, 4:555, 1930.
- Caldwell, J. M., Jr. and Mayo, J. G.: Cutaneous reactions to histamine. Reactions in occlusive and spastic vascular disease and in chronic infectious arthritis, *Arch. Int. Med.*, 47:403, 1931.
- Duryee, A. W. and Wright, I. S.: The treatment of scleroderma by means of acetyl beta methyl choline chloride (mecholy) iontophoresis, *Am. Heart J.*, 14:603, 1937.
- Robinson, A. S.: Report of a case of scleroderma of the skin, *Am. J. Med. Sci.*, 154:657, 1917.

45. Williams, C. M.: A case of diffuse scleroderma presenting unusual features, *Arch. Dermat. & Syph.*, 9:187, 1924.
46. Murray-Will, E.: Scleroderma and syphilis, *British J. Dermat. & Syph.*, 39:201, 1927.
47. Guillian, G., Alajouanine, T. and Marquézy, R.: Sclérodémie progressive avec cataracte double précoce chez un infantile, *Bull et mém. Soc. méd. d. hôp. de Paris*, 47:1489, 1923.
48. Lewis, T. and Kerr, W.: Experiments relating to the peripheral mechanism involved in spasmodic arrest of the circulation in the fingers, a variety of Raynaud's disease, *Heart*, 15:7, 1929-31.
49. Lewis, T. and Pickering, G. W.: Observations upon maladies in which the blood supply to digits ceases intermittently or permanently, and upon bilateral gangrene of digits; observations relevant to so-called "Raynaud's disease", *Clin. Sci.*, 1:327, 1933-34.
50. Lewis, T. and Landis, E. M.: Further observations upon a variety of Raynaud's disease; with special reference to arteriolar defects and to scleroderma, *Heart*, 15:330, 1929-31.
51. Brown, G. E. and O'Leary, P. A.: Skin capillaries in scleroderma, *Arch. Int. Med.*, 36:73, 1925.
52. King, A. D.: Local responses to histamine in normal skin, in dermatophytosis, alopecia areata and in scleroderma, *Arch. Dermat. & Syph.*, 25:840, 1932.
53. Moench, L. M.: A case of chronic arsenic poisoning in a child associated with profound anemia and scleroderma, *New York State J. Med.*, 36:1029, 1936.
54. Brooke, H. G. and Roberts, L.: The action of arsenic on the skin as observed in the recent epidemic of arsenical beer poisoning. *British J. Dermat. & Syph.*, 13:121, 1901.
55. Barendt, F. H.: The skin lesions due to the presence of arsenic in beer, *British J. Dermat. & Syph.*, 13:148, 1901.
56. Putnam, J. J.: The frequency with which arsenic is found in the urine; with notes on some few cases of poisoning from wall-paper and fabrics, *Boston M. & S. J.*, 122:421, 1890.
57. Gaskill: Scleroderma, *J. Cutan. Dis.*, 34:465, 1916.
58. Ayres, S., Jr.: Scleroderma as a possible manifestation of chronic arsenic poisoning, *Arch. Dermat. & Syph.*, 2:747, 1920.
59. Seale, E. R.: Endocrine aspects of scleroderma. Report of a case with glandular dysfunction, *Southern M. J.*, 22:885, 1929.
60. Brown, G. E.: Skin capillaries in Raynaud's disease, *Arch. Int. Med.*, 35:56, 1925.
61. Pautrier, M. L.-M. and Ullmo, A.: Note sur la capillaroscopie de la dermatite chronique atrophique et de la sclérodémie, *Bull. Soc. franç. de dermat. et syph.*, 36:776, 1929.
62. Turner, R. H., Burch, G. E. and Sodeman, W. A.: Studies in the physiology of blood vessels in man. III. Some effects of raising and lowering the arm upon the pulse volume and blood volume of the human finger tip in health and in certain diseases of the blood vessels, *J. Clin. Investigation*, 16:789, 1937.
63. Johnson, C. A. and Hedges, R. N.: Studies on peripheral vascular phenomena. IV. Finger volume changes in a patient showing Raynaud's phenomenon, *Surg., Gynec. & Obstet.*, 60:1077, 1935.
64. Sodeman, W. A. and Burch, G. E.: Tissue pressure: An objective method of following skin changes in scleroderma, *Am. Heart J.*, 17:21, 1939.
65. Sodeman, W. A. and Burch, G. E.: The tissue pressure in subcutaneous edema, *Am. J. Med. Sci.*, 194:846, 1937.
66. Burch, G. E. and Sodeman, W. A.: A tonometer for measurement of tissue turgor in the human finger tip, *Proc. Soc. Exper. Biol. & Med.*, 39:125, 1938.
67. Sodeman, W. A. and Burch, G. E.: A direct method for the estimation of skin distensibility with its application to the study of vascular states, *J. Clin. Investigation*, 17:785, 1938.

68. Brown, G. E.: The treatment of peripheral vascular disturbances of the extremities, *J. A. M. A.*, 87:379, 1926.

69. Epstein, E. and Ayres, S., Jr.: Creatinuria in scleroderma, *J. Lab. & Clin. Med.*, 22:697, 1937.

---

## SURGICAL CONSIDERATIONS

ALTON OCHSNER, M. D.†

AND

MICHAEL DEBAKEY, M. D.†

NEW ORLEANS

The surgical treatment of scleroderma is based upon a rational consideration of certain clinical and experimental observations which seem to have pathogenic significance. In previous publications (with Leriche and Jung<sup>1, 2</sup>) these factors which form the basis of parathyroidectomy and sympathectomy were reviewed, and the results obtained following the application of these surgical procedures in 26 cases of scleroderma were presented. At that time it was stated that improvement to a greater or lesser degree followed parathyroidectomy in over 90 per cent and sympathectomy in approximately two-thirds of the cases. However, the methods of determining such improvement admittedly were not accurate as they depended upon subjective and relatively gross objective means. With the development of more accurate methods of study devised by Burch and Sodeman,<sup>3, 4, 5</sup> it has been possible to determine with considerable accuracy the presence or absence as well as the degree of improvement following therapy. Accordingly, four patients operated upon by us have been studied in an attempt to evaluate better the results of the surgical procedures.

### RATIONALE OF SURGICAL PROCEDURES

Whereas a detailed discussion of the clinical and experimental factors which form the basis of parathyroidectomy and sympathectomy in the treatment of scleroderma is beyond the scope of this presentation, it is considered desirable to review briefly the rationale of these surgical proce-

---

†From the Department of Surgery, School of Medicine, Tulane University, New Orleans, La.



dures. Parathyroidectomy is based upon certain clinical and experimental observations which seem to indicate a definite physiologic disturbance in the calcium metabolism suggesting a hyperfunction of the parathyroids. That hyperparathyroidism may play a prominent role in the pathogenesis of scleroderma has been expressed by numerous observers. Amongst the first to direct attention to the pathogenic significance of parathyroid dysfunction in this disease are Leriche and his co-workers<sup>1, 2, 6-10</sup> and Weissenbach and his collaborators.<sup>11-14</sup>

#### HYPERPARATHYROIDISM

Leriche and Jung<sup>9-10</sup> are convinced that scleroderma is the result of an abnormal increase of calcium in the skin consequent to a skeletal "osteolysis" due to hyperparathyroidism. It is their conception that the endocrine dysfunction, i. e., chronic hyperparathyroidism, is the primary disturbance, the bone changes or osteolysis the intermediate, and the cutaneous process the end-result. Weissenbach and his collaborators<sup>11-14</sup> have emphasized further the parathyroid dysfunction in scleroderma. Bernheim and Garlock<sup>15, 16</sup> have expressed the belief that disturbance in calcium metabolism associated with hyperplasia and hypertrophy of the parathyroids is responsible for the vasospastic as well as the cutaneous manifestations occurring in scleroderma. The parathyroid tissue removed at operation in six cases of scleroderma showed hypertrophy in every instance and evidence of acute parathyroiditis in one according to these authors.<sup>15</sup> Similar histopathologic changes have been observed by others.<sup>17, 18</sup> Of interest in this regard is the report by Aisenberg<sup>19</sup> of a case of scleroderma following malaria in which the author expresses the opinion that the disease resulted from parathyroid injury by the malarial parasite.

In true hyperparathyroidism there usually occurs hypercalcemia, hypophosphatemia, and a negative calcium balance. The results of such studies in scleroderma have been somewhat confusing. Because these characteristic findings have not been constantly

present in scleroderma, many observers have urged that a hyperparathyroidism cannot be present. That hypercalcemia may occur in scleroderma has been demonstrated by numerous investigators.<sup>20-29</sup> In one of our cases there was a marked hypercalcemia and following parathyroidectomy the blood calcium returned to and remained normal. On the other hand, a number of observers<sup>18, 28, 30, 31</sup> have reported normal or even subnormal blood calcium findings in patients with scleroderma. However, as previously stated by Leriche, Jung and DeBakey<sup>1</sup> such findings do not necessarily "depreciate the significance of hypercalcemia in scleroderma." It has been shown that in experimental chronic hyperparathyroidism the blood calcium is at first increased but within several months drops to and remains normal.<sup>1, 32</sup> As scleroderma should be considered a chronic parathyroid disturbance rather than an acute one, the blood calcium studies may not be significant. Similarly, corresponding findings are to be expected in the urinary calcium. Of particular interest in this regard is the authoritative opinion of Allbright, Aub, and Bauer<sup>33</sup> who state that, "Whereas hypercalciuria and hyperphosphaturia are two of the most constant metabolic abnormalities of hyperparathyroidism, from a practical clinical point of view, this evidence is extremely laborious to obtain, seldom necessary, and, in border-line cases often not helpful. Thus, hypercalciuria is dependent on the hypercalcemia. If the latter is at a border-line level, the former will be as well." A similar opinion is expressed by Bernheim and Garlock.<sup>15</sup>

Experimental support of the significance of hyperparathyroidism in scleroderma has been presented by a number of investigators. While studying the effect of intraperitoneal injections of parathyroid extract in young rats, Selye<sup>34</sup> observed cutaneous changes which closely resembled those occurring in scleroderma. Subsequently these findings were confirmed by others.<sup>35, 36</sup> Moreover, Leriche and his co-workers<sup>36</sup> found that the calcium content of the skin of these animals was increased two to three

times the normal. On the other hand, Hueper<sup>37</sup> was unable experimentally to reproduce these cutaneous changes. Curiously enough he employed dogs, whereas all the other investigators used rats. Clinically the calcium content of the skin in patients with scleroderma is definitely increased.<sup>10</sup> This has been demonstrated roentgenologically as well as by chemical analysis. In one of our cases, large deposits of calcium were observed roentgenologically in the skin over the hands, elbows, and axillae.

Because in classical examples of hyperparathyroidism skeletal decalcification is one of the characteristic manifestations, it may be argued that this should be observed in scleroderma if the condition is due to parathyroid disturbance. Durham<sup>30</sup> has contended that there is no evidence of generalized decalcification of bone in scleroderma. The decalcification most commonly observed occurs in the involved extremities and this may be attributed to disuse. On the other hand, diffuse decalcification, as revealed by roentgenographic studies, has been observed by Leriche and his co-workers.<sup>1, 9</sup> However, as previously stated<sup>1</sup> some cases of scleroderma show no skeletal changes. This does not necessarily indicate absence of disturbed parathyroid function because as stated by Brody and Bellin,<sup>38</sup> the process of removal of calcium from the bones through the action of the parathyroids may be very slow, "so that if there is an adequate intake of calcium the amounts removed from the bones are replaced and little or no osteoporosis is observed."

#### PARATHYROIDECTOMY

On the basis of these clinical and experimental observations which indicated that in scleroderma there occurs a definite physiologic disturbance in the calcium metabolism suggesting parathyroid hyperfunction, parathyroidectomy was considered a rational therapeutic procedure. Accordingly Leriche,<sup>8</sup> in 1931, performed the first parathyroidectomy in a case of scleroderma. The operation was followed by a remarkable improvement. Subsequently others<sup>14-16, 39-41</sup> have made similar observations. Leriche, Jung, and De-

Bakey<sup>1</sup> in an analysis of 13 cases found that five (38.4 per cent) showed marked improvement, seven (53.8 per cent) showed moderate improvement, and only one (7.6 per cent) showed no improvement. Moreover, there were six cases observed from two to five years after operation. In all of these the improvement not only was maintained but continued. Two of these patients observed two and five years, respectively, after operation were apparently completely relieved of all previous manifestations. We have performed parathyroidectomy in combination with sympathectomy in three patients with scleroderma. These patients were carefully studied by means of the distensimeter, tonometer, and tissue pressure apparatus devised by Burch and Sodeman.<sup>3, 5</sup> Such objective methods permit accurate evaluations of any changes which may occur following the institution of therapy. The results of these studies in the three patients in whom parathyroidectomy was performed approximately one and a half years ago reveal only slight improvement in one, moderate improvement in the second, and marked improvement in the third.

#### SYMPATHECTOMY

Sympathectomy is the other surgical procedure which has been applied in the treatment of scleroderma. This is based upon certain clinical and experimental observations which seem to indicate that the sympathetic apparatus is of pathogenic significance in certain forms of scleroderma. It has long been observed that vasomotor disturbances closely simulating Raynaud's phenomena frequently precede the characteristic cutaneous manifestations of scleroderma.<sup>42, 43, 44</sup> In a clinical study of 103 cases, O'Leary and Nomland<sup>43</sup> found that this occurred in over one-third. The vascular and cutaneous manifestations observed in some of these cases are undoubtedly closely related.<sup>42, 45</sup> Microscopic studies of the capillaries in the nail bed made by Brown, O'Leary, and Adson<sup>42, 46, 47</sup> on patients with scleroderma and with Raynaud's alone revealed similar abnormal changes. These observations were also made by

Pautrier and Ullmo.<sup>48</sup> On the basis of their observations, Brown, O'Leary, and Adson are of the opinion that sympathetic hypertonia of the arterioles is a significant factor in the development of scleroderma. A similar opinion has been expressed by Thibierge and Weissenbach,<sup>49</sup> Follmann and Ballo.<sup>50</sup> The vasospastic element in scleroderma has been demonstrated further by oscillometric<sup>51</sup> as well as by plethysmographic studies.<sup>52</sup> The marked influence of environmental temperature, i. e., pronounced vasospasm on exposure to cold and vasodilation on exposure to heat, reflects the exaggerated tonus of the arterioles. On the other hand, Lewis and his co-workers<sup>45, 53</sup> are of the opinion that the pathologic vascular reactions observed in scleroderma are due to a local disturbance in the digital arteries. They believe that there exists an incomplete relaxation of the arteries between attacks of spasm and that premature closure of the vessels results from the structural changes in the arterial wall. These observers state that this does not depend upon sympathetic hypertonus. According to Prinzmetal<sup>54</sup> the ischemia present in these cases is due to the constricting effect on blood vessels by the tightness of the skin and not to sympathetic influence.

#### VASCULAR DISTURBANCES

That vascular disturbances play prominent roles in the development of scleroderma is shown further by histopathologic studies of the arterioles and capillaries. In detailed examinations of six patients, Matsui<sup>55</sup> found definite degenerative changes in the small cutaneous arteries as well as those of the lungs, kidneys, and endocrine glands. Similar findings were reported by Sannicandro,<sup>56</sup> and Rake<sup>57</sup> observed an endarteritis of the peripheral vessels in a case with vasomotor disturbances. Other observers have expressed the opinion that the primary lesion in scleroderma is in the walls of the blood vessels.<sup>58-61</sup>

Thus the basis for the conception that the sympathetic apparatus is of pathogenic significance in certain forms of scleroderma may be summarized briefly as follows: In scleroderma there frequently

occur vasomotor disturbances which closely resemble Raynaud's phenomena. Environmental temperature has a pronounced influence on the vessels; exaggerated vasospasm follows exposure to cold and prompt vasodilation results from exposure to heat. Definitive vascular changes are observed histopathologically.

On the basis of these clinical and experimental observations which seemed to indicate a vasospastic element in scleroderma, Leriche<sup>62</sup> first proposed interruption of sympathetic impulses to the vessels as a therapeutic procedure. This was first performed by Brüning,<sup>63</sup> in 1923. Since then a number of observers have performed sympathectomy in scleroderma with varying results.<sup>64-75</sup> Some have reported remarkable improvements whereas others observed no beneficial changes. In an analysis of 13 patients in whom sympathectomy was performed, Leriche, Jung, and DeBakey<sup>1, 2</sup> observed marked improvement in five (38.4 per cent), moderate improvement in four (30.7 per cent), slight improvement in one (7.6 per cent), and no improvement in three (23 per cent). It was stated then that sympathectomy seems to be of value in the early cases in which the cutaneous lesions are not pronounced and in which the vasospastic phenomena are conspicuous.

#### ESOPHAGEAL DISTURBANCES

We have performed sympathectomy alone in one patient with scleroderma. This case was similarly studied according to the objective methods previously stated<sup>3, 4, 5</sup> and the results of these studies reveal marked improvement which has continued during the 17 months since operation. Of particular interest in this case are the esophageal manifestations. The patient developed progressive dysphagia during the last six months before the institution of surgical intervention. Fluoroscopic examination following the ingestion of a barium meal revealed retention at the cardiac end of the esophagus apparently due to a localized constriction. Esophagoscopy showed no growth but a stricture at the cardia and biopsy study of this tissue revealed normal mucosa. Since operation the dysphagia has

been considerably relieved. However, esophageal dilation has also been used.

Dysphagia and esophageal disturbances in scleroderma were first observed by Ehrmann,<sup>76</sup> in 1903. Since then, a number of cases have been recorded.<sup>77-86</sup> Weissenbach and his co-workers<sup>82</sup> state that including their four cases there have been a total of 18 cases reported in the literature, which clearly indicates its unusual occurrence. A more detailed study of this rare disturbance in scleroderma will be presented in a subsequent publication.<sup>87</sup>

#### SUMMARY

1. The surgical treatment of scleroderma consists of parathyroidectomy and sympathectomy.

2. The rationale of parathyroidectomy is based upon certain clinical and experimental observations which seem to indicate a definite physiologic disturbance in the calcium metabolism suggesting a hyperfunction of the parathyroids: (1) The presence of hypercalcemia in certain forms of scleroderma; (2) an abnormal increase of the calcium content of the skin in certain forms of scleroderma; (3) the occurrence of skeletal decalcification in some cases of scleroderma; (4) the experimental production of cutaneous changes clinically and histologically resembling scleroderma by the injections of parathyroid extract; and (5) evidence of hyperplasia and hypertrophy of the parathyroids in scleroderma.

3. The results of parathyroidectomy in previously reported cases are reviewed.

4. The rationale of sympathectomy is based upon certain clinical and experimental observations which seem to indicate that the sympathetic apparatus is of pathogenic significance in certain forms of scleroderma: (1) The frequent occurrence of vasomotor disturbances which closely resemble Raynaud's phenomena; (2) environmental temperature has a pronounced influence on the vessels; (3) exaggerated vasospasm follows exposure to cold and prompt vasodilatation results from exposure to heat; and (4) definitive vascular changes are observed histopathologically.

5. The results of sympathectomy in previously reported cases are reviewed.

6. We have performed parathyroidectomy and sympathectomy in three patients with scleroderma. The results of objective methods of study in these cases one and one-half years after operation reveal slight improvement in one, moderate improvement in the second, and marked improvement in the third.

7. The results in a fourth case in which sympathectomy alone was done reveal marked improvement seventeen months after operation.

8. The unusual complication of dysphagia and esophageal disturbances in scleroderma is described and occurred in one of our cases.

#### REFERENCES

1. Leriche, R., Jung, A. and DeBakey, M.: The surgical treatment of scleroderma, *Surg.*, 1:6, 1937.
2. DeBakey, M.: Surgical treatment of scleroderma, *New Orleans M. & S. J.*, 89:631, 1937.
3. Burch, G. E. and Sodeman, W. A.: A tonometer for measurement of tissue turgor in the human finger tip, *Proc. Soc. Exp. Biol. & Med.*, 39:125, 1938.
4. Burch, G. E. and Sodeman, W. A.: The estimation of the subcutaneous tissue pressure by a direct method, *J. Clin. Invest.*, 16:845, 1937.
5. Sodeman, W. A. and Burch, G. E.: A direct method for the estimation of skin distensibility with its application to the study of vascular states, *J. Clin. Invest.*, 17:785, 1938.
6. Leriche, R. and Jung, A.: Vingt opérations parathyroïdiennes dans diverses affections, *Rev. de Chir.*, 52:5, 1933.
7. Leriche, R.: A propos du traitement chirurgical de la sclérodémie, *Bull. et mém. Soc. nat. de Chir.*, 58:7, 1932.
8. Leriche, R. and Jung, A.: Essai de traitement de la sclérodémie par la parathyroïdectomie, *Bull. et mém. Soc. Nat. de Chir.*, 57:609, 1937.
9. Leriche, R. and Jung, A.: Nature et origine de la sclérodémie, *Bull. Soc. franç. dermat. et syph.*, 42:885, 1935.
10. Leriche, R. and Jung, A.: Recherche sur la nature de la sclérodémie; les traductions tissulaires de l'hyperparathyroïdisme dans la sclérodémie; ostéolyse; surcharge calcique de la peau; signification des chiffres indiquant la teneur en calcium du sérum et des urines, *Presse Méd.*, 43:1361, 1935.
11. Weissenbach, R. J., Basch, G., and Basch, M.: Les formes cliniques du syndrome de Thibierge-Weissenbach: concrétions calcaires des sclérodémies, *Ann. dermat. et syph.*, 4:1, 1933.
12. Weissenbach, R. J., Basch, G., and Basch, M.: Les formes cliniques du syndrome de Thibierge-Weissenbach: concrétions calcaires des sclérodémies (IV. Etude Radiographique), *Ann. de dermat. et syph.*, 4:125, 1933.
13. Weissenbach, R. J., Boppe; Martineau, J., and Malinsky, A.: Sclérodémie progressive. Télangiectasies multiples disséminées. Parathyroïdectomie, *Bull. Soc. franç. de dermat. et syph.*, 42:1413, 1935.
14. Weissenbach, R. J., Boppe; Martineau, J., and Stewart: Sclérodémie progressive. Amélioration par la parathyroïdectomie, *Bull. Soc. franç. de dermat. et syph.*, 43:1012, 1936.

15. Bernheim, A. R. and Garlock, J. H.: Parathyroidectomy for Raynaud's disease and scleroderma, *Ann. Surg.*, 101:1012, 1935.
16. Garlock, J. H.: Parathyroidectomy for Raynaud's disease and scleroderma, *S. Clin. North America*, 16:771, 1936.
17. Durham, R. H.: A case of scleroderma with extensive subcutaneous, periarticular and vascular calcification, *Ann. Clin. Med.*, 5:679, 1926.
18. Cornbleet, T. and Struck, H. C.: Calcium metabolism in scleroderma, *Arch. Dermat. & Syph.*, 35:188, 1937.
19. Aisenberg, M. F.: Ueber Calcinosis interstitialis universalis, *Fortschr. a. d. Geb. d. Röntgenstrahlen*, 39:443, 1929.
20. Pernet: Sur un cas de sclérodémie avec calcinose, *Arch. f. Dermat. u. Syph.*, 152:337, 1926.
21. Kennedy, R. L. J.: Calcinosis and scleroderma in a child treated by ketogenic diet, *Med. Clin. N. Am.*, 12:1655, 1929.
22. Naegeli: A propos des sclérodémies, *Bull. Soc. franç. de dermat. et syph.*, 36:883, 1929.
23. Pautrier, L. M. and Zorn: La calcémie dans les atrophies cutanées et dans les sclérodémies, *Bull. Soc. franç. de dermat. et syph.*, 36:991, 1929.
24. Millan, G., Périn, L., and Horowitz: Sclérodémie calcaire, *Bull. Soc. franç. de dermat. et syph.*, 37:475, 551, 1930.
25. Jung, A. and Hakki, A. C.: De l'influence des opérations parathyroïdienne sur la calcémie chez l'homme, *Comp. rend. Soc. de biol.*, 108:40, 1937.
26. Weissenbach, R. J., Truchot, P., Françon, F., and Laudat, M.: Rheumatisme chronique fibreux, sclérodémie et concrétions calcaires sous-cutanées. Etude radiologique et bio-clinique, *Bull. et mém. Soc. méd. d. hóp. de Paris*, 47:837, 1931.
27. Jung, A. and Hakki, A. C.: Etudes sur la calcémie. Cent dosages du calcium sérique dans divers états pathologiques, affections osseuses et ostéoarticulaire, sclérodémie, retraction de l'aponévrose pulmaire, chéloïdes et autres, *Rev. de chir.*, 51:537, 1922.
28. Michon, P. and Bohème, P.: Sclérodémie métamérique chez une hyperthyroïdienne. Hypocalcémie, *Bull. Soc. franç. de dermat. et syph.*, 40:4, 1933.
29. Brooks, W. D. W.: Calcinosis, *Quart. J. Med.*, 3:293, 1934.
30. Durham, R. H.: Scleroderma and calcinosis, *Arch. Int. Med.*, 42:467, 1928.
31. Lereboullet, P. and Lelong, M.: Concrétions calcaires multiples de la peau avec sclérodémie localisée chez la mère et la fille, *Bull. Soc. de pédiat. de Paris*, 28:53, 1930.
32. Jaffe, H. L. and Bodansky, Aaron: Experimental fibrous osteodystrophy (ostitis fibrosa) in hyperparathyroid dogs, *J. Exper. Med.*, 52:669, 1930.
33. Albright, Aub, and Bauer: Quoted by Bernheim and Garlock, Ref. No. 15.
34. Selye, H.: A condition simulating human scleroderma in rats injected with parathyroid hormone, *J. A. M. A.*, 99:108, 1932.
35. Shellings, D. H., Asher, D. E., and Jackson, D. A.: Calcium and phosphorus studies; effects in variations in dosage of parathormone and of calcium and phosphorus in diet on concentrations of calcium and inorganic phosphorus in serum and on histology and chemical composition of bones of rats, *Bull. Johns Hopkins Hosp.*, 53:348, 1933.
36. Leriche, R., Jung, A., and Sureyya, C.: La peau dans l'hyperparathyroïdisme expérimental; étude de la sclérodémie expérimentale, *Presse méd.*, 43:777, 1935.
37. Hueper, W.: Metastatic calcifications in the organs of dogs after injections of parathyroid extract, *Arch. Path. & Lab. Med.*, 3:14, 1927.
38. Brody, Joseph, and Bellin, D. E.: Calcinosis with scleroderma, *Arch. Dermat. & Syph.*, 36:85, 1937.
39. Puddu, V.: Un caso di scleroderma con calcificazioni operato di paratiroidectomia, *Policlinico (sez. prat.)*, 41:1801, 1934.
40. Basch, G., Leibovici, R., Durupt, A., and Basch, M.: Sclérodémie avec concrétions calcaires (syndrome de Thibierge-Weissenbach) associée à une atrophie cutanée; parathyroidectomie, *Bull. et mém. Soc. méd. d. hóp. de Paris*, 50:516, 1934.
41. Spillmann, L., Hamant, A., Weis, J., and Créhange: Sclérodémie en plaques, troubles vasomoteurs et parathyroidectomie, *Bull. Soc. franç. de dermat. et syph.*, 42:991, 1935.
42. Brown, G. E. and O'Leary, P. A.: Skin capillaries in scleroderma, *Arch. Int. Med.*, 36:73, 1925.
43. O'Leary, P. A. and Nonland, R.: A clinical study of one hundred and three cases of scleroderma, *Am. J. Med. Sci.*, 180:95, 1930.
44. Lewis, T. and Pickering, G. W.: Observations upon maladies in which the blood supply to digits ceases intermittently or permanently, and upon bilateral gangrene of digits; observations relevant to so-called "Raynaud's disease", *Clin. Science*, 1:327, 1933-34.
45. Lewis, T. and Landis, E. M.: Further observations upon a variety of Raynaud's disease; with special reference to arteriolar defects and to scleroderma, *Heart*, 15:329, 1931.
46. Brown, G. E.: Skin capillaries in Raynaud's disease, *Arch. Int. Med.*, 35:56, 1925.
47. Brown, G. E., O'Leary, P. A., and Adson, A. W.: Diagnostic and physiologic studies in certain forms of scleroderma, *Ann. Int. Med.*, 4:531, 1930.
48. Pautrier, L. M. and Ulmo, A.: Note sur la capillaroscopie de la dermatite chronique atrophiante et de la sclérodémie, *Bull. Soc. franç. de dermat. et syph.*, 36:776, 1929.
49. Thibierge, G. and Weissenbach, R. J.: Concrétions calcaires sous-cutanées et sclérodémie, *Ann. de dermat. et syph.*, 2:129, 1911.
50. Follmann, J. and Balló, B.: Beiträge zu den klinischen Untersuchungen und zur pathologischen Histologie der endokrinen Drüsen bei Sklerodermie, *Dermat. Wehnschr.*, 97:1779, 1933.
51. Leriche, R. and Fontaine, R.: Le traitement chirurgical de la sclérodémie par les interventions sur le sympathique, *Bull. Soc. franç. de dermat. et syph.*, 36:995, 1929.
52. Johnson, C. A. and Hedges, R. N.: Studies on peripheral vascular phenomena, *Surg. Gynec. Obst.*, 60:1077, 1935.
53. Lewis, T. and Kerr, W.: Experiments relating to the peripheral mechanism involved in spasmodic arrest of circulation in the fingers, a variety of Raynaud's disease, *Heart*, 15:7, 1929-31.
54. Prinzmetal, Myron: Studies of the mechanism of circulatory insufficiency in Raynaud's disease in association with sclerodactylia, *Arch. Int. Med.*, 58:309, 1936.
55. Matsui, S.: Anatomie pathologie et pathogenie de la sclérodémie généralisée, *Mitt. a. d. med. Fak. d. k. Univ. zu Tokyo* 31:55, 1924. *Abst. Presse méd.*, 2:142, 1924.
56. Sannicandro, G.: Contributo alla conoscenza della sclerodermia con speciale riguardo ai suoi rapporti con le turbe metaboliche del calcio, *Arch. ital. di dermat.*, sif. 4:427, 1929.
57. Rake, G.: On the pathology and pathogenesis of scleroderma, *Bull. Johns Hopkins Hosp.*, 48:212, 1931.
58. Dinkler, M.: Zur Lehre von Sclerodermie, *Deutsches Arch. f. Klin. Med.*, 48:514, 1891.
59. Newman, M. F.: *Handbuch der Hautkrankheiten*, A. Hölder, Vienna, 1904.
60. Crocker, H. R.: *Diseases of the Skin. Their Description, Pathology, Diagnosis, and Treatment*, P. Blakiston's Son and Co., Philadelphia, 1908.
61. Gaucher, E.: *Maladies de la peau*, J. B. Baillière et fils, Paris, 1909.
62. Leriche, R.: Sur l'étude expérimentale, la technique et quelques indications nouvelles de la sympathectomie périartérielle, *Presse méd.*, 30:1105, 1922.
63. Brüning, F.: Ueber Dauererfolge und Misserfolge der periarteriellen Sympathektomie, insbesondere über ihre Ausführung bei der arteriosklerotischen Gangrän, *Klin. Wehnschr.*, 2:923, 1923.

64. Enderlen: Zentralbl. f. Chir., p. 1833, 1922.
65. Horn: Ueber periarterielle sympathektomie bei Sklerodermie, Zentralbl. f. Chir., 50:831, 1933.
66. Kappis: Weitere Erfahrungen mit der Sympathektomie, Klin. Wchnschr., 2:1441, 1923.
67. Stahl: Spätergebnisse der periarteriellen Sympathektomie mit einigen Bemerkungen über die Ernährung der Arterienwände, Deutsche Ztschr. f. Chir., 197:280, 1926.
68. Kment, H.: Ergebnisse der Brüning-Leriche'schen Operation, Beitr. z. klin. Chir., 140:220, 1927.
69. Lehmann, W.: Die Dauererfolge der periarteriellen Sympathektomie, Beitr. z. klin. Chir., 143:320, 1928.
70. Muller, G. P.: End results of periarterial sympathectomy, Ann. Surg., 88:474, 1928.
71. Adson, Alfred W., O'Leary, Paul A., and Brown, George E.: Surgical treatment of vasospastic types of scleroderma by resection of sympathetic ganglia and trunks, Ann. Int. Med., 4:555, 1930.
72. Leriche, R., Wolf, M., and Fontaine, R.: Résultats d'interventions sur le sympathique dans la sclérodémie, Bull. Soc. franç. de dermat. et syph., 32:153, 1925.
73. Leriche, R. and Fontaine, R.: Résultats un peu éloignés des interventions sur le sympathique dans la sclérodémie et dans la dermatite chronique atrophiante, Rev. de chir., Paris, 65:285, 1927.
74. Leriche, R. and Robineau: Indications et résultats de la sympathectomie périartérielle dans la chirurgie des membres, Paris chir., 19:191, 1927.
75. Gaté, J., Michel, P. J., and Cuilleret, P.: Sclérodactylie progressive avec syndrome de Raynaud, opérée en 1933 et 1934. Résultats thérapeutiques, Bull. Soc. franç. de dermat. et de syph., 42:1032, 1935.
76. Ehrmann: Ueber die Beziehung der Sklerodermie zu den autotocischen Erythemen, Wiener med. Wchnschr., 6:6, 1903.
77. Schmidt, R.: Sklerodermie mit Dysphagie, Med. klin., 12:460, 1916.
78. Schwarz, P.: Sklerodermie und Röntgenkastration, Schweiz. med. Wchnschr., 56:246, 1926.
79. Nomland, R.: Sclerodactylia with calcification, Arch. Dermat. & Syph., 21:322, 1930.
80. Fessler, A. and Pohl, R.: Stenosierender Progress des Oesophagus bei Sklerodermie, Dermat. Ztschr., 63:164, 1932.
81. Kuré, K., Yamagata, K., Tsukada, S., and Hiyoshi, J.: Passagestörung des Oesophagus bei Sklerodermie und Dystrophia musculorum progressiva, Klin. Wchnschr., 15:516, 1936.
82. Weissenbach, R. J., Stewart, W., and Hoesli, H.: Les troubles fonctionnels oesophagiens et les lésions de l'oesophage dans la sclérodéma, Bull. Soc. franç. de dermat. et syph., 44:1060, 1937.
83. Cailliau: Discussion of Weissenbach, Stewart, and Hoesli, Bull. Soc. franç. de dermat. et syph., 44:1060, 1937.
84. Weissenbach, R. J., Martineau, J., Bouwens; Pizon; and di Matteo: Sclérodémie progressive. Syndrome de Thibierge-Weissenbach. Ulcère de jambe et calcification en mollières. Troubles oesophagiens, Bull. Soc. franç. de dermat. et syph., 44:2018, 1937.
85. Hoesli, Henri: Troubles fonctionnels et lésions de l'oesophage dans la sclérodémie, Thèse de Paris, 1937, Jouve et Cie, Paris.
86. Weissenbach, R. J., Dechaume; Martineau, J., Stewart, W., and Hoesli, H.: Un case de syndrome de Thibierge-Weissenbach (sclérodémie progressive et calcifications) avec lésions bucco-pharyngéiques et oesophagiennes accentuées, ayant nécessité la gastrostomie, Bull. Soc. franç. de dermat. et syph., 44:1053, 1937.
87. Ochsner, Alton and DeBakey, Michael: Esophageal manifestations of scleroderma. Review of literature and report of an additional case. In press.

## A PRELIMINARY REPORT ON A PRESUMPTIVE SIGN OF SYPHILIS

ALFRED L. ADAM, M. D.†  
SHREVEPORT, LA.

There are many signs and symptoms by which syphilis may be detected, the most notable of which are the darkfield, the Wassermann test and the x-ray findings. Among the lesser signs are those produced by characteristic skin, bone and nerve lesions of early and late syphilis familiar to every one. The enlargement of the epitrochlear lymphatic glands is a fairly constant finding and is in a way related to the sign to be presented.

The clinics in Caddo Parish have a case load of about 1,200 patients and ample opportunity is presented, particularly in the Shreveport clinic, to study and evaluate signs and symptoms of early and late syphilis.

### THE SPECIAL SIGN

A consistent sign that I have noted here is an erythematous inflammatory condition of the buccal orifice and intramural portion of Stensen's duct. The intramural part of the duct, that is, the terminal part of the duct that lies between the buccinator muscle and the mucous membrane is not considered as important as the appearance of the orifice proper. The changes in the appearance of the duct orifice need careful interpretation to be of maximum value if my deductions are correct. Furthermore, it might be well to remember that varying climatic conditions with varying upper respiratory tract infections, the variations in oral hygiene, variations in diet and constitutional diseases may well change the value of this sign. In this locality the dental conditions are excellent, the diet fairly well balanced and throat, mouth and ear infections are few and far between.

A brief description of the sign as I have observed it and a possible explanation of the evident pathology follows. In almost all early cases of syphilis and many of late

†From the Caddo-Shreveport Health Unit, Venereal Disease Division.

syphilis I have noted the following changes in Stensen's duct:

1. Edema and congestion or swelling of the duct and adjacent area.

2. A flap-like fold of mucous membrane about the duct accentuated by the edema or congestion.

3. An inflammation of the orifice.

1. The edematous congestion of the duct and adjacent area must be interpreted very carefully and is probably not of very great significance when occurring alone. Bad oral hygiene; carious teeth, particularly upper second molars; use of snuff; leukoplakial patches, and chronic pharyngitis tend to cause this condition, I believe. The use of snuff placed in the cheek and held there like chewing tobacco is a common habit here among the negroes.

2. The flap-like fold of mucous membrane is considered a normal departure from the usual anatomy and has about the same slight significance as the above simple congestion of the duct in the adjacent area.

3. The inflammation about the orifice with or without congestion is considered the major phase of the sign.

The following subdivisions of the sign have been noted: (a) A pinhead sized lesion about 2 mm., well circumscribed and of pale pink to reddish cast; (b) a red, erythematous inflammatory lesion slightly larger than the above, of greater degree of redness and not well demarcated; (c) a very red lesion, with slight suggestion of purplish color, diffuse and from two to five mm. in size, usually with congestion.

The pinhead lesion and the not well demarcated lesion are seen often enough in negative cases so as to be considered only slightly presumptive but when evaluated with history and physical findings it strengthens somewhat the suspicion of syphilis.

The lesion mentioned under heading (c) is the crux of the entire sign but like meatoscopy of the ureteral orifice, ophthalmoscopy and examination of the cervix, it needs careful examination and interpretation. With the diffuse, very red condition of one or both orifices, without a chancre

and negative Wassermann, it might be well to keep the patient under observation especially if the epitrochlears can be palpated.

An attempt in the following paragraph is made to show why such a sign should be present and why it should be of more value than epitrochlear enlargement. Let us first consider the anatomy of the parotid gland and remember the anatomy and pathologic changes of the ureter, and the anatomy and pathology of the prostate with its ejaculatory ducts. In the latter two organs certain types of pathology manifest themselves in changes in the ureteral orifices and the openings of the ejaculatory ducts in the posterior urethra. It might be better to compare what we know of kidney pathology with its obstructive uropathic changes to the conditions present in the parotid gland and duct in syphilis. In the kidney, obstruction with stasis of urine resulting from calyceal or pelvic deformity caused by pyelonephritis, cyst, stones, and tumors or aberrant blood vessels and ptosed kidneys frequently gives rise to infection, either a new type or superimposed on inflammatory conditions already present.

In the case of the parotid gland, the presence of lymphatic glands in the substance of the parotid is presumed to take part in the general adenopathy of syphilis and through persistence of their enlargement, such as in the cases of the epitrochlears, cause in course of time some macroscopic evidence of inflammation about the orifice of Stensen's duct because of mechanical interference with the flow of salivary fluid from the gland. Ascending, lymphatic or hematogenous infections of low grade character apparently result as evidenced by the sign being described in this paper. Some bacteriostatic phase of the salivary secretion may hold this infection in abeyance or limit it to such a low degree that it escapes notice.

To support the above thought a brief quotation from Morris' Anatomy is given: "Finally, there are embedded in the gland two or three deep lymphatic nodes, which

receive lymphatic vessels from the external meatus, the soft palate, and the posterior part of the nasal fossa, and several superficial nodes which receive lymphatic vessels from the temple, eyebrows and eyelids, cheek and auricle."

Retrograde x-ray of the parotid duct and its branches could be made and studied using skiodan or uroselectan as in pyelography and possibly some light may be brought to bear upon this subject.

Interpretative and technical difficulty should be anticipated due to the fine caliber of the beginning duct. Cultures, rates of flow and changes in the composition of the salivary secretion with regard to relative amounts of water, salts and the organic material obtained through stimulation of the chorda tympani nerve in these cases may well give different results from the normal, provided the lymphatic glands

enlarge sufficiently to affect the secretory mechanisms.

#### SUMMARY

1. A sign persistently present in our cases has been described.
2. Anatomic and pathologic explanation has been attempted.
3. Other tests that might re-enforce the sign have been suggested.

#### CONCLUSIONS

If other investigators coincide with my findings and the sign does exist in a fair degree of patients in all localities, I believe due to its accessibility it should prove of definite value and certainly no harm can result from suspected syphilis in every patient. If this paper only stimulates interest in carefully studying patients for infectious syphilis, early cardiovascular, and early neurosyphilis, it will be of definite value.



## DIAGNOSIS AND TREATMENT OF BRONCHIAL ASTHMA\*

NICHOLAS K. EDRINGTON, M. D.  
NEW ORLEANS

The diagnosis of bronchial asthma is based upon many points that are characteristic of the asthmatic in a spasm. If the patient is seen during the attack the diagnosis is comparatively simple. The characteristic orthopneic position and the wheezing expiratory type of respiration are in most cases sufficient evidence upon which to make this diagnosis. However, in the interval or free stage the diagnosis is sometimes rather difficult, due to the fact that the examination reveals no characteristic abnormalities and it is here that one has to depend upon the patient's history. Thus if a patient gives a history of paroxysmal, periodic or recurrent attacks of acute dyspnea, accompanied by wheezing and especially occurring at night, it is safe to make a diagnosis of asthma. A history

of a preceding or associated hay fever or coryza or a sensitivity to some food and a family history of allergy strengthen greatly the presumptive diagnosis of asthma.

In a small percentage of patients the history may be so indefinite that the diagnosis is sometimes difficult. Occasionally some complicating condition may so mask the underlying or basic disease as to make it hard to determine its real nature, or factors residing outside of the bronchial tree may produce symptoms simulating asthma. In these instances the diagnosis must of necessity be differential in character and can be greatly aided by the finding on examination of the patient of the responsible organic lesion or by the use of laboratory methods or other special examinations.

Faced with a problem of doubtful allergic etiology, certain diagnostic criteria may be applied which were propounded by Rackemann:<sup>1</sup>

- "1. A presenting symptom which can be explained by smooth muscle spasm, or by increased capillary permeability.
- "2. The occurrence of one or several other manifestations of allergy.

\*Read at Baptist Hospital Clinic of the Annual Meeting of the American College of Physicians, New Orleans, March 30, 1939.



"3. A positive family history of allergy.

"4. The presence of positive skin tests.

"5. The presence of a blood eosinophilia."

The indication that allergy must be considered depends upon the greater number of the above characteristics present in the patient's symptoms. To these criteria may be added the clinical response to epinephrine, which furnishes an important therapeutic guide in many cases.

When it has been established that we are dealing with an allergic problem, it is now necessary to establish the importance of certain specific causative or exciting factors and the secondary or predisposing factors that may have a bearing on the case. For this purpose, we must depend not only upon the history, physical examination and laboratory tests, but also upon specific skin and other tests for allergens, therapeutic trial and certain special examinations when indicated.

#### IMPORTANCE OF THE HISTORY

A detailed and carefully taken history constitutes one of the most important aids in the diagnosis of bronchial asthma. In fact, in many instances, diagnosis can be made on the history alone. While the patient is being questioned the necessity for determining the many factors must be constantly borne in mind. Information must be elicited as to the mode and date of the initial attack, which will often bring out valuable clues. Should the description of the attacks be similar, the history of a typical one is sufficient, but frequently the sequence of events is helpful. The time when attacks occur, whether seasonal or perennial, is very important.

The environment of the patient and the time of day when symptoms first appear should be carefully noted. The duration of the attacks, their frequency and severity and the effect of change of environment and medication will give further information. The amount of relief between attacks is of considerable prognostic value. Careful inquiry should be made to bring out the part that some primary or aggravating factor may play in the case. Thus, an at-

tack of asthma may follow an infection, such as a cold, or exposure to house dust, animal pets, the use of cosmetics, or the ingestion of certain foods. Occupation and environment of the patient sometimes are responsible for the exciting factors; such as the baker with wheat, the farmer with cattle, horses, chickens and grain dust, the beautician with orris root and cosmetics. Climatic conditions such as moisture, dryness, wind or changes in barometric pressure may be important and physical agents such as heat and cold may have some relation to the attack. The length of time the patient has resided in his present quarters and the effect of any recent change should be brought out. Careful questioning should elicit a description of the house furnishings, especially those of the bedroom, for the presence of possible allergens may be found in the rugs, carpets, bedding, upholstery of the furniture and contents of clothes closets. The presence of pets, such as a cat or dog about the home and the kind of soaps, tooth powders and cosmetics being used should be disclosed.

The patient should be questioned as to what effect a vacation or a change of habits or environment has on symptoms. Prolonged hospitalization often results in the clearing up of the symptoms of bronchial asthma due, no doubt, to the removal of the patient from an environment containing the exciting allergen.

A history of manifestations of allergy in the past, especially in childhood, should be carefully sought. Recurrent colds or cases of bronchitis, urticaria, migraine, cyclic vomiting or eczema greatly assist in establishing an allergic background.

A careful and systematic review of the general health of the patient should be made. The existence of anemia, endocrine disturbances, increased nervous tension, digestive upsets, foci of infection, menstrual disorders and inadequate rest are factors of importance, the consideration and treatment of which are essential to achieve the best results from therapy. Any so-called idiosyncrasy to drugs such as phenolphthalein, aspirin, or quinine, should be looked

upon with suspicion, for allergy to certain drugs is probably much more common than is generally supposed.

One of the outstanding facts concerning the allergic patient is that he possesses a constitution different from his fellowmen. That this allergic constitution is inherited from one generation to another is sufficiently established by the studies of Clark, Donnelly, Coca,<sup>2</sup> Balyeat<sup>3</sup> and others. Studies indicate that what is inherited is not the specific disease itself, but the allergic tendency which makes the descendants subject to become sensitive to anything. A positive family history of allergy forms a very useful criterion in doubtful cases. Investigation of the "family tree" should include at least four generations: the grandparents, the parents, uncles and aunts, brothers, sisters and cousins. A history of "catarrh," sinusitis, bronchitis, hives and eczema in other members of the family, though masked by the patient by other names, should be considered with suspicion.

Asthmatic patients, apart from their manifestations of allergy, are usually healthy individuals; nevertheless, one should never omit the physical examination. A careful check up should be made of the eyes, nose, mouth, chest and skin. Attention should be directed to the possibility of focal infection in the sinuses, teeth, tonsils, prostate and bronchial tubes. Often it is necessary to differentiate cardiac from bronchial asthma; therefore, the heart should not be neglected in the examination. It is essential to note the general state of nutrition of the patient, nervous state and evidence of any metabolic disturbance.

#### LABORATORY EXAMINATIONS

Laboratory examination of the patient with bronchial asthma should include the routine examination of the urine, a complete blood count with special emphasis placed on the differential study of the white blood cells for eosinophils. The presence of a large number of eosinophils in the blood smear and in the bronchial secretions is additional evidence that the condition being investigated is of allergic origin. Continued absence of eosinophils, coupled

with the presence of a large number of neutrophils, suggests an infection rather than an allergic process. In 1934 Vaughan<sup>4, 5</sup> revived Widal's "digestive hemoclasia" test, renamed it the "leukopenic index," and has since been advocating it as a diagnostic aid in food allergy. However, the more recent work of Loveless, Dorfman and Downing<sup>6</sup> and others has demonstrated that a postprandial leukopenia was not found to be an index to incompatible foods. In cases where an element of infection is suspected, the erythrocyte sedimentation rate is of some value. The metabolic rate, gastric analysis and additional studies of the blood chemistry are not infrequently indicated. X-ray examination of the chest following the intratracheal instillation of iodized oil should be made to exclude the presence of bronchiectasis. Examination of the sputum for the tubercle bacilli is, of course, made in doubtful cases and an auto-genous vaccine may be made from the sputum when the symptoms seem largely explainable on a basis of infection.

#### SKIN TESTING

While the diagnosis of allergy in most cases is made on the basis of the history and is confirmed by physical and laboratory findings, it is essential that skin tests be performed mainly in an effort to determine the specific exciting agents; however, reliance on them alone is apt to be misleading. One must remember a positive skin test does not always indicate that the patient is clinically sensitive to the allergen in question. A positive skin test will reveal, not only present sensitivities, but sensitivities existing and persisting from childhood, or may represent future sensitivity. Negative skin tests do not mean that the patient is not allergic, and finally, the size of the test reaction is not necessarily correlated with the degree of sensitivity. It must be emphasized then, that, if skin tests are to be made, they should be adequate thoroughly to investigate the particular case, bearing in mind that the reactivity of the skin varies markedly in different patients. Finally, the results obtained from the skin test

should be carefully evaluated in the light of the clinical history.

Where foods may be suspected as a factor, and skin tests are negative, or for some reason cannot be performed, the use of elimination diets should be employed. If, following the elimination of some food, the symptoms disappear only to return when the specific food is placed back in the diet, it is possible to incriminate this food as a probable factor.

#### TREATMENT

The most effective therapeutic measure for the relief of the asthmatic paroxysm is the administration of epinephrine (1:1000 dilution) by hypodermic injection. Epinephrine produces its effect by heightening the tone of the sympathetic component of the vegetative nervous system. In the lungs it overcomes the opposing parasympathetic or vagus pull, the bronchospasm is relieved and the edema and swelling of the bronchial mucosa are reduced to vasoconstriction of the arterioles. There are practically no contraindications to the use of epinephrine. It is not injurious to the body tissues, nor is it a habit-forming drug. The dose necessary to reduce the spasm depends upon the age of the patient, the severity of the attack and whether or not the patient has had previous injections of the drug. Usually from two or five minims of the drug suffice to bring relief within a few minutes, and the earlier in the attack the drug is given, the smaller the dose required. A most common error is to give an initial dose of 1 c.c. since this represents the contents of the usual ampule, with the result that many patients suffer from alarming and annoying symptoms such as extreme pallor, marked tremor, palpitation, throbbing headache, nervousness and weakness which may persist for quite a while. Such symptoms do not endanger the life of the patient; however, the discomfort often discourages subsequent administration of the drug.

In the more chronic cases, especially those of many years' duration, the dose of epinephrine may have to be repeated and larger doses (2-3 c.c.) may have to be given

before the attack is broken. Once the severe attack has subsided, it will be found that the patient can again be relieved by the smaller or usual dose. When the asthmatic attacks occur at frequent intervals, it is advisable to instruct the patient or some member of the family as to the technic of epinephrine injection in order to permit its administration as often as required and as soon as possible in the onset of the attack. This procedure may mean the difference between a good or bad night for the patient. The use of epinephrine in 1:100 dilution by oral inhalation has been used for quite a few years. My enthusiasm for this method for the relief of the asthmatic attack soon waned, because I found, in many instances, the desired relief was not obtained due to the insufficient amount of vapor produced by the nebulizers available for this purpose. More recently the DeVilbiss Company has put on the market an all-glass nebulizer No. 40 for vaporizing concentrated epinephrine and other aqueous solutions. This apparatus produces approximately five times the amount of vapor as the older types and can be adjusted to regulate the vapor to a lesser amount. Results in the control of the asthmatic paroxysm with this type of nebulizer has produced excellent results and has greatly reduced the number of injections of epinephrine. Contrary to expectation, instances of over dosage with the more powerful vaporizers are very seldom encountered. Dryness of the mouth and pharynx can be avoided by having the patient rinse the mouth with water following the use of the vaporizer. Ephedrine is a fairly efficient substitute for epinephrine and has the advantage that it can be administered orally. Its action, however, is not so prompt and efficient as epinephrine and in many patients produces somewhat disagreeable after effects, such as nervousness and insomnia. The ephedrine preparation most commonly used is the sulphate or hydrochloride in combination with amytal or phenobarbital, the latter drugs to counteract the after effects of the ephedrine. Propadrine hydrochloride, which possesses none of the after effects

of ephedrine, used in combination with theophylline, makes an excellent preparation for the control of the attacks.\* Morphine should never be used in patients in whom epinephrine effectively relieves the attack. It is a dangerous drug in asthma and probably should never be used. Clinically, asthmatic patients of any age, especially children and elderly people whose bronchial tubes are filled with mucus, should not have morphine given for the relief of their symptoms. Morphine paralyzes the cough reflex and depresses the respiratory center, defeating nature's efforts in relieving the bronchial tubes of the tenacious mucus.

In the more severe cases of intractable asthma, or the cases of so-called status asthmaticus, where repeated doses of epinephrine have failed to control the paroxysm, the use of aminophylline U. S. P., or theophylline ethylenediamine in  $7\frac{1}{2}$  grain doses, mixed with 10-20 c.c. of glucose solution given slowly and intravenously seems to be most effective, prompt, reliable, safe and, at times, apparently life-saving therapeutic measure. Should this fail, rectal ether narcosis should be tried. Equal parts of ether in olive oil (5-7 ounces for adults and  $\frac{1}{2}$  to 2 ounces for children) should be given slowly through a rectal tube. Helium 80 per cent and oxygen 20 per cent applied by inhalation with a special closed apparatus has produced definite improvement.

The measures outlined provide in most patients immediate and complete relief of the acute asthmatic symptoms. In the long standing or chronic cases, especially those with a superimposed bronchitis and those with more or less continuous asthma, symptomatic treatment is likewise necessary in addition to that employed during the acute attack. A combination of expectorants, antispasmodic and sedative drugs are employed for this purpose. Potassium or sodium iodide in 5-10 grain doses, lobelia and stramonium, 5-10 minim doses of the tinc-

ture and the barbiturates in  $\frac{1}{4}$  -  $\frac{1}{2}$  grain doses are valuable drugs.

Autogenous bacterial vaccines prepared from the nasal and bronchial secretions should be used in all cases where a secondary bronchial infection exists. The question as to whether their administration constitutes a form of specific or non-specific desensitization is academic and controversial. However, clinical experience has proved these vaccines of beneficial value. Attempts should be made to improve the general health of the patient. Foci of infection should be removed or corrected, if they are either detrimental to the general health of the patient, or of importance in relation to the asthmatic condition. Treatment of abnormalities of the nasal passages and of infections of the paranasal sinuses should be conservative; radical measures should be avoided unless all other methods to bring relief have failed.

The correction and restoration to a normal state of body chemistry and endocrine balance is quite important in the management of the asthmatic person. Hygienic measures which will serve to improve the well-being of the patient should be applied to the chronic asthmatic, especially during the free or interval stage. Heavy meals in the late evening should be avoided as gastric distention may provoke an attack. The principal meal should be taken at noon. Bowels should be properly regulated to avoid constipation and flatulence. Indigestion and dyspepsia sometimes may be the result of a deficiency of hydrochloric acid in the gastric juice. In these cases, dilute hydrochloric acid in 15-60 minim doses should be administered before meals.

The specific treatment of asthma, as with other allergic conditions, is dependent upon the etiologic factors brought out by diagnostic study. It consists of the elimination of, or the avoidance of contact with the specific excitants. Pillows and mattress may be covered with an allergen proof encasing; dust in the bedroom may be prevented by making the bedroom as barren as possible and by using washable rag rugs. Pets

\*Tablets containing propadrine hydrochloride, gr.  $\frac{1}{2}$ , and theophylline, gr. 2, were supplied for experimental use through the courtesy of Sharp & Dohme. These tablets are now on the market under the name of padrophyl.

should not be allowed in the house and non-allergic cosmetics should be used. All food giving definite positive reactions and found on clinical trial to be a factor in the case should be removed from the diet.

Desensitization therapy by subcutaneous injections with extracts of the inhalant allergens should be instituted when the reactions to them are markedly positive and when contact cannot be avoided easily, as in the case of house dust, molds, orris root, or the animal danders, and when the pollens give positive reactions.

Patients suffering from periodic attacks of severe asthma, with mild daily attacks between with the production of considerable white glary or semi-purulent mucus are often greatly benefited by the intratracheal instillation of iodized oil. Its use cannot in itself cure a patient suffering from allergic asthma, but is of inestimable value as a means of dislodging and forcing up bronchial plugs and tenacious mucus and replacing pockets of pus with a non-irritating substance.

#### SUMMARY

It is extremely difficult to estimate definitely the results of treatment in asthma. All that can be said, in a general way, is that the results obtained by the present day treatment are a vast improvement over those of 20 to 30 years ago, and the outlook for the asthmatic patient is not so hopeless now as it was in former years. Time and a better understanding of many factors concerned will accomplish much towards improving the results of treatment.

#### REFERENCES

1. Rackeman, F. M.: *Clinical Allergy, Asthma and Hay Fever*. New York: The Macmillan Company, 1931, p. 225.
2. Clarke, J. A. Jr., Donnally, H. H., and Coca, A. F.: Studies in specific hypersensitiveness; on influence of heredity in atopy, *J. Immunol.*, 15: 9, 1928.
3. Balyeat, Ray M.: The hereditary factor in allergic diseases, *Am. J. Med. Sci.*, 176: 332, 1928.
4. Vaughan, W. T.: Further studies of the leukopenic index in food allergy, *J. Allergy*, 6: 78, 1934.
5. ———— The leukopenic index as a diagnostic method in the study of food allergy, *J. Lab. & Clin. Med.*, 21: 1278, 1936.
6. Loveless, Mary; Dorfman, Robert; and Downing, Lillian: A statistical evaluation of the leukopenic index in allergy, *J. Allergy*, 9: 321, 1938.

## TORSION OF THE GALLBLADDER

### REPORT OF A CASE, WITH A BRIEF COMMENT ON CERTAIN ASPECTS OF THIS ACCIDENT\*

H. REICHARD KAHLE, M. D.  
NEW ORLEANS

#### CASE REPORT

A. V., 60 years of age, a white farmer of French descent, was admitted to Charity Hospital of Louisiana at New Orleans shortly after midnight March 18, 1938. The history was unsatisfactory because the patient was in too much pain, and, as a result, too restless to be cooperative.

His illness had begun several days before admission with mild pain in the mid epigastrium. The pain radiated into the right lower quadrant, and was not relieved by two bowel movements which followed the taking of epsom salts shortly after the onset. Intermittent nausea had been present through the illness, but the patient had not vomited at any time. Seven hours before admission the pain became very acute. The physician who was then consulted for the first time made a diagnosis of acute appendicitis and advised immediate hospitalization. At the time of admission the pain was very severe and was localized in the right lower quadrant. There were no other symptoms except slight difficulty in voiding. No relevant facts were elicited from the previous history.

The temperature on admission was 98° F., the pulse 60, the respiratory rate 16, and the blood pressure 140/110. Except for a few sibilant and sonorous rales throughout the chest, examination of the head, neck and chest was entirely negative. The respiratory movements of the abdomen were limited. There was marked rigidity in the epigastrium and in the right lower quadrant, which could be somewhat relaxed after a little effort. No organs or masses could be palpated, and no herniae were present.

Urinalysis revealed nothing abnormal. The white blood cells numbered 16,500, with 72 per cent neutrophils.

Although the normal pulse rate and temperature were against such a diagnosis, the most likely possibility seemed to be acute appendicitis. Ruptured peptic ulcer, with spillage along the right lumbar gutter, was also considered, although no history of previous dyspepsia could be obtained.

As the condition was clearly surgical, the abdomen was opened under nitrous oxide and ether anesthesia an hour and a half after the patient was admitted. A right transrectus incision was

\*From the Department of Surgery of the School of Medicine of Louisiana State University, and Charity Hospital of Louisiana at New Orleans.

used, with its center opposite the umbilicus. No fluid was found in the peritoneal cavity, nor was there any evidence of peritonitis. The appendix was entirely normal.

Further exploration revealed a brownish-red mass, which, when the incision was extended upward, proved to be the gallbladder. It was very much distended and buckled at the liver edge. This finding led to the suspicion that torsion had occurred. Further examination showed that the gallbladder, which was suspended from the under surface of the liver in an avascular peritoneal fold resembling a mesentery, had completely twisted on this attachment in a clock-wise direction. No point of perforation could be detected, although there was a slight brownish stain on the anterior wall of the stomach, where the mass had been in contact with this organ.

The torsion was reduced and cholecystectomy done without difficulty, since the peritoneal attachment was avascular and the gallbladder mobile. The pedicle containing the cystic duct and vessels was divided and doubly ligated. The appendix was not disturbed. A drain was left in the region of the cystic duct and brought out through a stab wound. The abdomen was closed in layers.

The gallbladder was desired as a museum specimen and was therefore not opened, but no stones could be palpated within it.

Convalescence was without incident except for a psychosis which began on the fifth day and persisted until the ninth. The patient was discharged in excellent condition on the twelfth day, and according to his family physician has remained well to date, thirteen months after operation.

#### COMMENT

The first case of torsion of the gallbladder was reported by Wendel in 1898. Some 70 cases are now on record, including the two just reported by Berry<sup>3</sup> in 1939. Most of them are in the foreign literature, and two or three others may be reported in certain of these articles not available at this time. Shipley,<sup>7</sup> in 1927, and Short and Paul,<sup>6</sup> in 1934, have so thoroughly covered the subject that another detailed study would not be justified, though the condition is still sufficiently infrequent to warrant the report of single cases as they occur.

Except for the fact that in the case herewith reported the patient was a man, it presented no unusual features. In the 60 cases in which information as to sex of the patient is available, only eight were men.

Typically the patient is a narrow-waisted, elderly female who is suddenly stricken with colicky pain in the midabdomen or

right hypochondrium. Vomiting is frequent but jaundice is rare. The temperature and pulse remain normal for a long period of time, in spite of the extremely severe pain. Symptoms of peritonitis supervene on the original symptoms only when the gallbladder wall becomes gangrenous and perforates. Until that time, the most striking characteristics of the illness are the intense pain and the presence of a mass, which may disappear and reappear, in the upper right quadrant, the alterations probably being due to the twisting and untwisting of the pedicle.

The accident is usually considered to be caused by abnormal mobility of the gallbladder, either as the result of an absence of attachment or a loose attachment to the under surface of the liver, or the presence of a mesentery in which the gallbladder is suspended. Peristaltic movements in the transverse colon have been considered as a possible exciting cause. In the case reported in this paper, the attack of pain began before the patient took a purgative, but was much worse afterwards, and perhaps the increased intestinal movements did play some part. If, however, purgation had been the chief etiologic factor, in all probability the rotation would have been counter-clockwise instead of clockwise. A counter-clockwise movement seems to be rather more common in the reported cases.

Stones are frequently found in gallbladders which have undergone torsion, but are thought to have little to do with causing the accident. In Short and Paul's opinion they are present no more frequently in such cases than one would expect to find them in elderly women in general.

The mortality is surprisingly low (16 per cent, according to Arthur<sup>2</sup>) considering that the patients are usually advanced in years. The ease with which cholecystectomy can be performed, because of the loose attachment of the gallbladder to the liver, probably explains most of the favorable results.

Torsion of the gallbladder is most often diagnosed as acute cholecystitis or cholelithiasis, followed in the order of frequency by appendicitis and intestinal obstruction.

A number of authors consider the clinical picture distinct enough to permit a correct preoperative diagnosis, which has been made in a number of the reported cases. It seems fair enough to say that if the accident is borne in mind, a dramatic diagnosis will often be possible. As Berry points out, however, the condition is so very unusual that the likelihood of its presence is rarely considered.

## SUMMARY

A case of torsion of the gallbladder is added to the approximately 70 cases already on record. A brief comment is made on several important features of the accident, and it is pointed out that a preoperative diagnosis could frequently be made if the possibility of its occurrence were borne in mind. The mortality is surprisingly low considering the advanced age of most of the patients.

## REFERENCES

1. Angel, F., and Angel, E.: Torsion of the gallbladder with gangrene: case report, *South. M. J.*, 29:944, 1936.
2. Arthur, H. R.: Acute torsion of gallbladder, *Brit. M. J.*, 2:265, 1937.
3. Berry, W. H.: Torsion of the gallbladder, *J. A. M. A.*, 112:1580, 1939.
4. Blank, E.: Torsion of gallbladder with perforation and gangrene in boy 17, *New England J. Med.*, 212:197, 1935.
5. Hun, H. H.: Torsion of the gallbladder, *Albany M. Ann.*, 55:98, 1936.
6. Short, A. R., and Paul, R. G.: Torsion of the gallbladder, *Brit. J. Surg.*, 22:301, 1934.
7. Shipley, A. M.: Torsion of the gallbladder, *Arch. Surg.*, 14:968, 1927.
8. Suggit, S. C.: Torsion of the gallbladder, *Brit. M. J.*, 1:977, 1935.

## PATHOLOGIC FRACTURE OF RIB

## REPORT OF A CASE

A. MAYORAL, M. D.  
NEW ORLEANS

Pathologic fractures are well known, but they are by no means common. Within the past four years I have seen only one, and this of a very unusual nature.

This type of fracture, sometimes called spontaneous, always follows slight external violence, or muscular action of less degree. Clinically they are found to be due to in-

flammatory bone processes; neoplasms, benign or malignant; bone atrophy of disuse, or imperfect osteogenesis.

Syphilis, mentioned by some as a cause of fractures, is extremely rare except in cases of tabes.

The case presented is one of gumma of the left eighth rib.

## CASE REPORT

G. T., a 51-year-old Norwegian, white seaman, was admitted to the Marine Hospital on September 26, 1932. The diagnosis was syphilis, tertiary, general. The family history was unimportant. He denied previous diseases except a penile lesion in 1907. No treatment had been received until October, 1930, when patient received five intravenous injections of neoarsphenamine in San Pedro, California. On July 15, 1932, while in Calcutta, India, he noticed a pain in the lower chest. Since then he has been having intermittent shooting pains in the chest, at times severe. A shipmate applied a mustard plaster to his chest, which caused a severe burn. This burn brought him to the hospital.

Skiagram of the chest revealed pathologic frac-

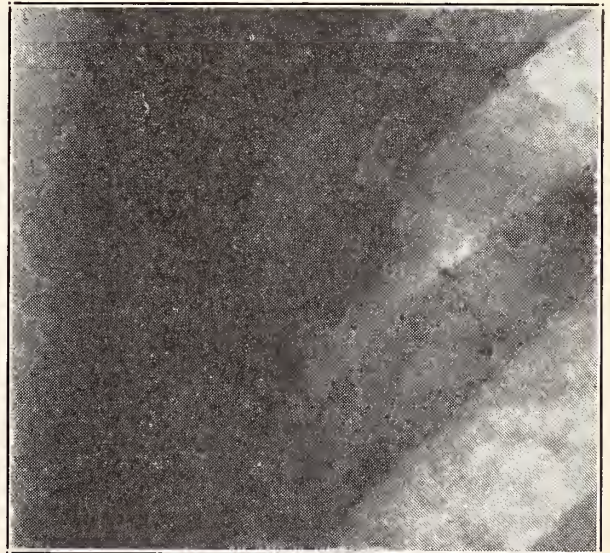


FIGURE 1.

ture (fig. 1) of the eighth left rib. Although his syphilitic condition was known, extensive work was done to rule out malignancy. The patient received the following antiluetic treatment during his stay in this hospital from September 26, 1932 to February 7, 1933: Hypodermic injection of bismuth every three days for 23 days; potassium iodide, 15 drops three times a day, increased gradually to 109 drops three times a day, the dose the patient was taking on date of his discharge.

Final discharge note states: "Patient is feeling quite well and has gained 35 pounds."

Skiagram of November 11, 1932 (fig. 2) showed complete healing.



FIGURE 2.

#### SUMMARY

It is my opinion that the case described is undoubtedly one of fracture of the eighth rib due to gumma, a very unusual finding nowadays.



# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Clarence A. Lorio, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Acting Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D., Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

G. C. Anderson, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*

1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

---

## MEDICAL ECONOMICS

One among the many unsubstantiated and wild statements that have been made by the proponents of the Wagner Bill has to do with the need of medical care by a large proportion of the population of this country. It has been stated that there are forty million people who are suffering from

lack of medical care. The absolute unsoundness of this statement may be readily disputed by every practicing physician who comes in daily contact with rich and poor in his community. However, in order to disprove this statement which has been advanced *ex cathedra*, Dr. Brash, of Rochester, was appointed chairman of a committee by the Trustees of the American Medical Association to investigate the true facts relative to the need and supply of medical care in the United States. This committee reported to the House of Delegates of the American Medical Association at the recent meeting in St. Louis. Their findings should be of interest to all medical men.

Carried out with the cooperation of county and state medical societies, the replies to questionnaires were received from some twenty thousand physicians and dentists. Seventeen thousand of these forms were made out by physicians and covered a section of the population represented by forty-three million people. The information obtained by the committee showed definitely that some 10 per cent of the population were given free services by the medical man, estimated, in a general way, to be very much over the \$1,000,000 a day of free service supposedly given by physicians in the United States.

In addition to the professional man, nurses, hospitals, health departments and relief organizations and social service departments were contacted and questioned. "Ninety per cent of all the sources consulted reported that they knew of no significant number of persons needing or seeking medical care who are unable to obtain it." The majority of opinions from all sources show that it is forty thousand rather than forty million people in the United States who lack or need medical services. The questionnaires indicated with almost complete unanimity that medical services supplied by governmental agencies were the ones most likely to be insufficient.

A study has been recently completed by the Council on Medical Education and Hospitals of the need for medical care in an

essentially rural state, Mississippi. Here again a very careful survey indicates that there is no lack of medical care, or hospitalization if needed, for the general population of the state. The urban and rural populations are both adequately taken care of in every way.

Both of these two studies indicate definitely that the pouring out of untold millions for the care of those who are presumed not to be able to obtain medical services is a piece of horribly rank extravagance. Were this money to go to the physician and to those who work under him immediately, taking care of patients, it might be money well spent and would recompense the doctor for the immense amount of free service he now gives to the indigent in office, in home, in clinic and in hospital. Such would not be the case. The bulk of the money would probably go to non-medical officials and for purposes not directly devoted to medical care. All those who come in personal contact with the sick now realize and appreciate that, irrespective of a man's financial status, efficient medical care may be obtained for him. To destroy the practice of medicine in order to obtain an objective which is chimerical and visionary would seem the height of political, social and economic folly.

---

## THE VITAMINS

---

This is a subject which has been discussed very frequently in these columns in the last several years. However, it is still a very live subject and one about which an enormous number of papers are appearing in the current medical literature. In the last six months in the Quarterly Cumulative Index Medicus are 693 references to the subject of vitamins. It is not only the internist but the specialist as well who is interested in the expressions of vitamin deficiency and their eradication. Illustrative of this very general trend of the use of vitamins in the treatment of disease is the fact in the last two years there has been something like 1000 per cent increase in the

sale of vitamin concentrates by the pharmaceutical houses. Vitamins have been found to correct many unusual conditions.

Of interest may be a few of the recent uses of vitamins which have not been generally known. For example, vitamin A is being used extensively by the ophthalmologist in the prevention of various types of ocular disease, notably indolent ulcers and chorioretinal disturbances. The dermatologist is using this vitamin to correct an eruption which is described as follicular and which resembles goose flesh and observed in those who have obtained sexual maturity. The surgeon has found that vitamin A is an excellent application for the treatment of burns and wounds, and that healing is accelerated by giving cod liver oil by mouth and using the vitamin locally. The urologist is using vitamin A in the treatment and prevention of urinary lithiasis. Some reports as to chronic vitamin A deficiency playing a role in the etiology of bladder and kidney stones are contradictory but the evidence seems to be accruing that a minimal vitamin A deficiency may play a part in producing these stones. The gynecologist has found that vaginitis, notably in elderly women, is materially benefited by giving a large amount of vitamin A.

Vitamin B, and more particularly that fraction which is now recognized as nicotinic acid, has proved of inestimable value in the management of patients who are suffering from subclinical pellagra. Patients who complain of nervousness, abdominal pain, intermittent diarrhea, weakness and insomnia, have improved remarkably by the administration of 50 milligrams of pure synthesized vitamin B<sub>6</sub>.

Vitamin C has comparatively recently been shown to be of considerable help in the management of patients with anemia. It will accelerate the action of insulin so that the diabetic should be given large amounts of natural vitamin C. Healing seems to take place more rapidly in the patient who has a gastric ulcer when vitamin C, which is so often omitted in the ulcer diet, is administered in large doses.

It has been shown that the tuberculous individual requires a greater amount of ascorbic acid than does the normal. A small child who has diarrhea, a condition in which vitamin C is usually reduced, improves much more rapidly when vitamin C is added to excess in the diet than when it is omitted. Reports are coming in of improvement in patients with rheumatoid type of arthritis when given this preparation. It has been shown that it is an important factor in preventing anaphylaxis or allergy. As vitamin C is frequently withdrawn from the diet, caution should be observed in doing this. If it is necessary to take away the natural substances rich in vitamin C then it is advisable to give the concentrated tablets in 10 to 50 milligram doses two or three times a day.

Vitamin D, suffice it to say here, is essential to be given in adequate quantities in order to promote utilization of phosphorus in subclinical rickets.

Vitamin E is abundant in nature but this so-called antisterility vitamin has been given to women who abort habitually, or who are sterile, with some evidence of benefit.

Vitamin K, the antihemorrhagic factor, has proved of great value in the treatment of hemorrhagic states and more particularly has it been shown to be of value prophylactically prior to operation.

Vitamin P, with vitamin C, helps regulate vascular permeability. It has not as yet been used except experimentally.

Vitamin M is another vitamin which is of scientific or experimental interest but as yet lacks clinical utilization. This hypothetical vitamin, when absent from the diet, will produce severe stomatitis and granulocytopenia in the experimental animal.

Mentioned above are just a few of the more recent observations on the use of vitamins. Vitaminology may be a present day fad and the extensive use of vitamins as nowadays practiced may be, in the future, materially reduced. In the present transitory phase from the experimental to the

clinical use of various vitamin preparations an immense amount of information is accruing to medical knowledge. Ultimately vitamins may not be so generally prescribed as at present—but in certain conditions and disease states they will be added to the accepted remedies of worth and value.

---

### TO SECRETARIES OF PARISH SOCIETIES

---

The Journal Committee and the Editor have been very anxious indeed to increase the amount of space given to current activities amongst the various Parish and District Medical Societies. The Editor has addressed a personal note to, and by word of mouth in some instances, the secretaries of every medical society in the state. He has almost beseeched those who have secretarial duties to send in to the Journal office the information concerning the activities of physicians of his parish or of his district and information regarding medical meetings. In spite of diligent efforts the responses to those appeals have been answered by but a few.

Again the Editor, in behalf of the Journal Committee, requests that the state secretaries cooperate with him in order to make the New Orleans Medical and Surgical Journal livelier than it now is and one that represents more fully than it does the medical profession of the state. Doctors are interested in what other doctors are doing; they are interested in the programs of medical societies. As this news, for the most part, can only be obtained by publishing it in the Journal, which reaches most of the physicians of the state, the Editor then is appealing again to the secretaries to send in to the Journal news of their organizations. At least do this—please put the Journal on the mailing list for all programs and announcements that are sent out. Even this would be of some value because it would result in the publication of the notices or programs that are emanating from many sources throughout the state.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## TRI-STATE HOSPITAL, INC. Shreveport

The regular monthly meeting of the Tri-State Hospital Staff was held May 11, 1939, at 8:00 p. m. with 23 members present. Dr. T. J. Bush called the meeting to order. Minutes of the previous meeting were read and approved without correction.

Dr. W. B. Allums presented the case of a child (884-L), aged 3, who had suffered a small rectal hemorrhage. There was a history of gonorrhoeal vaginitis, not proved bacteriologically. The child was very nervous and had enuresis. Rectal examination revealed a foreign body apparently present in the vagina. When the vagina was probed the wire loop struck a metallic object. The x-ray revealed three safety pins in the vagina. These were removed under gas anesthesia and child recovered from all symptoms. The case was discussed by Drs. Wolfe and Strain.

Dr. J. E. Knighton, Sr., presented the case of a white male (1122-L4), aged 48, who was first admitted to the hospital on April 2, 1939 complaining of lethargy, dyspnea on effort, swelling of feet and ankles. Thyroidectomy had been done elsewhere 12 years before. Patient had been on maintenance dose of thyroid for a long period but had had none within the past several years. The symptoms complained of had been progressive for past year. Examination revealed dull facies, obesity, hoarseness, and non-pitting edema. A basal metabolic reading was -68. There was a microcytic anemia. He was given 2 grains of thyroid three times daily and in two weeks showed remarkable improvement. During treatment he had marked diuresis and weight loss. Basal metabolic rate at this time was -2.

Four days later he returned complaining of epigastric distress. During that night he had acute retrosternal pain, with shock, collapse of pulse and blood pressure. Electrocardiogram showed definite evidence of myocardial infarction with complete auriculoventricular block. Patient did not respond to treatment and expired after about 30 hours.

Two similar cases of myxedema, which had been treated elsewhere as pernicious anemia, were reported. Drs. Hargrove and Wolfe discussed the cases.

The hospital statistical report was read and deaths of the previous month reported.

E. W. Booth, M. D., Sec.

## SOUTHERN BAPTIST HOSPITAL New Orleans

The regular monthly staff meeting of the Baptist Hospital was held on Tuesday, May 23, at 8:00

p. m. Dr. E. Z. Browne, Chairman, presided and Dr. Garland Walls was in the Secretary's chair.

Dr. E. McC. Connely and Dr. Gilbert Anderson presented a case of spinal cord tumor. Operation was performed one year ago, with removal of a dural endothelioma. The patient made a complete clinical recovery and is now at work. Drs. T. C. Clements and E. A. Ficklen also presented the case of a patient from whom a dural endothelioma had been removed. Patient made a clinical recovery.

The remainder of the scientific program was devoted to a symposium on therapy in pneumonia. Dr. L. C. Chamberlain discussed dehydration therapy; Dr. Sam Hobson the serum therapy and Dr. P. H. Jones the use of sulfapyridine. The papers presented were freely discussed, Dr. Ervin Nelson, Professor of Pharmacology of Tulane University, and Dr. Allan Eustis opening the discussion.

The meeting of the Staff of the hospital was held on Tuesday, June 27, 1939, at 8 p. m. The following program was presented:

"Summer Diarrheas and Case Report of Auto-biliary Intraduodenal Feeding," by Dr. Daniel N. Silverman; "Most Prevalent Contact Dermatitis," by Dr. Barrett Kennedy; "Final Results of Devine Colostomy (Case Report)" by Dr. E. A. Ficklen; "Uterine Myoma and Pregnancy (Case Report)" by Dr. John Dicks.

Garland Walls, M. D., Sec.

## J. T. NIX CLINIC New Orleans

At the meeting held in June, Dr. Joseph A. La Nasa presented the following paper:

### URETERAL CALCULI

The subject of calculi in urinary disorders has always commanded the utmost interest. Difficulties in diagnosis are rather common occurrences. Atypical symptomatology in the presence of urinary calculi is frequently encountered and the avoidance of mistakes in the differential study requires the utmost skill.

It is not within the scope of this paper to discuss the etiology of stones in the urinary tract. However, it is most likely that in the formation of stones there are varying causes, and that no one theory will explain all cases.

Infections in the urinary tract, vitamin deficiency, changes in the acidity of the urine, colloidal disturbances, disease of the parathyroid gland, and foci of infection are all, no doubt, factors in the formation of stones.

Since the scope of this paper is to deal with ureteral calculi, the problem arises as to whether these stones are primary or secondary in the ure-

ter. The chief question of clinical interest here, is whether calculi which are present in the ureter, originate there, i. e., are primary or whether they simply represent the migration towards the bladder, of calculi which are formed in the kidney, that is to say, are secondary in the ureter.

The opinion of the majority of urologists is that, in nearly every case, the ureteral calculus was formed in the kidney and is found secondarily in the ureter. The minority, however, believe that calculi are formed primarily in the ureter as a result of the slowing up and subsequent infection of the column of urine, above a strictured area. Although one cannot deny that such a mode of formation holds true for a certain small percentage of cases, it seems illogical to ascribe such a primary origin to all cases, especially when there is an absence of any stricture.

As a rule there is only a single calculus, but there are many instances in which multiple calculi are found. Bilateral occurrence however, is comparatively uncommon. A large variety of combinations may be encountered:

- (1) Ureteral and renal on the same side.
- (2) Renal on one and ureteral on the opposite side.
- (3) Bilateral renal and unilateral ureteral.
- (4) Bilateral renal and ureteral, and also a vesical calculus.
- (5) Bilateral ureteral and unilateral renal.

One must never fail to take these various possible combinations into consideration before deciding on which method of treatment is to be taken because of the danger of postoperative anuria.

The surface, composition and form of ureteral calculi resemble somewhat those of renal calculi. The surface is usually smooth or finely granular but may be quite rough, so that the calculus is easily caught in the folds of the epithelial lining of the ureter. The composition varies like that of renal calculi, with the exception that a relatively larger proportion are of the pure uric acid and urate variety and are therefore, often permeable to the x-ray.

The diagnosis of ureteral calculi is based upon a carefully taken clinical history and the results of a thorough urologic examination. The urologic examination should include besides a complete urinalysis, studies made by radiography, cystoscopy and ureteropyelography.

In the treatment of ureteral calculi, the trend in the last few years has been towards non-operative measures instituted to facilitate the passage of these stones into the bladder. It has been found that delivery of the calculus without operation is possible in three out of four cases. There has been much discussion as to the maximum size that may be manipulated safely. Opinions vary, but the prevalent one is that stones larger than 0.5-0.75 cm. should be removed by ureterolithotomy rather than by transureteral manipulation. It also has been

agreed rather generally that only those stones which are situated in the lower third are suitable for manipulation. With regard to size of stones, the deciding factor is not the size of the stone but rather the diameter of the ureter and that no stone should be manipulated if there is not sufficient room in the ureter. One method of deciding this point is by preliminary passing of catheters alongside the stone. It should be possible to pass two No. 5 ureteral catheters easily beyond the stone before passage of extractor is attempted. When the extractor is passed it should never be forced. If these factors are kept in mind, a minimum of difficulty will be encountered.

Even though these rules are adhered to, there is a possibility that stones may become arrested somewhat in the course of withdrawal. This is rather uncommon, but it happens often enough to be important. One must be careful not to exert too much traction, or injury to the ureter may occur. Such a situation presents a real problem to the surgeon and may necessitate ureterolithotomy.

In conclusion I wish to stress strongly the point that in the large majority of cases of ureteral calculi that come to the attention of the urologist the stone can be dislodged by cystoscopic maneuvers. This condition occurs in three out of every four cases.

---

#### HUTCHINSON MEMORIAL CLINIC

New Orleans

Scientific Session conducted by the Department of Gynecology, Dr. E. H. Countiss presiding.

*Theories as to the Cause of Primary Dysmenorrhea* (Dr. E. H. Countiss): Ehrenfest's summary of work done on dysmenorrhea from 1933 to 1936, inclusive, will be quoted extensively. He states that "the profound anatomic, functional and biochemical changes, which during her child-bearing age periodically prepare the woman for a possible pregnancy, necessarily will give rise to a variety of subjective symptoms of which some express themselves in a marked pelvic discomfort."

Goldschmidt, in 1935, concluded that the disagreeable phenomena of menstruation are chiefly mental and traditional rather than biologic and that "women are still under the spell of the primitive taboo." Mayer restates the known fact that dysmenorrhea develops on a neurotic basis and may represent solely a protest or fear reaction, an "escape into disease."

Although dysmenorrhea does not necessarily go with sterility, it does indicate a causative relation in many instances because of the fact that the sterile patient is likely to overemphasize any slight anomaly of menstrual function because in her belief it is significant in inability to become pregnant. Until ten or fifteen years ago, most theories of menstruation were purely on a mechanical basis. However, it is now known that intrinsic or primary

dysmenorrhea requires careful clinical study, occasionally implying physical, biochemic, endocrinologic and psychologic examinations.

We may recall many dysmenorrheic patients with lumbar lordosis, thoracic kyphosis, visceroposis, these being associated with pelvic congestion at the time of menstruation. Industrial girls may overemphasize their complaints in order to gain time off, particularly if their employers assume that menstruating women should be semi-invalids. Fekete states that even in an infantile uterus, menstrual pain is not due to cervical stenosis but more likely to compression of engorged endometrium within the rigid walls of the uterus, and he states that dilatation and curettage is only temporary by virtue of the fact that it causes the uterus to become softened by the hyperemization. It seems that diathermy or follicular hormone accomplishes the same purpose. About 50 per cent who undergo dilatation and curettage derive some benefit.

Tedstrom and Wilson found that in women who present blood sugars of 80 mg., pain could be relieved in 80 per cent by a high carbohydrate diet for a week before menstruation. Altschul found complete relief in four patients within thirty to sixty minutes after the administration of orange juice and insulin, and also found relief in some by the administration of a high carbohydrate diet. Reynolds, in 1932, noted that the rabbit uterus in rhythmic activity was dependent on estrogenic hormones of the ovaries and that this was inhibited by the corpus luteum. Witherspoon was an ardent supporter of dysmenorrhea due to deficiency of corpus luteum. Cannon, in 1936, states that the dysmenorrheic pain is essentially spasmodic or tetanic in character and it is generally agreed that all types of visceral pain are due to exaggerated muscular contractions. Whitehouse, in 1926, claimed that any abnormal detachment of menstrual decidua is invariably associated with pain. Cannon concedes that decidual tissue acts as a foreign body, provoking muscular contractions. Pohl stopped a so-called dysmenorrhea by the administration of typhoid extract. Clow, in 1932, stated that she had very little use for drugs in essential dysmenorrhea, and urges for patient to carry on daily routine as regards diet, bathing, exercise and work.

Again we come to the theory of Reynolds and Novak, based on a study in which they found that estrin stimulates uterine contractions, that is, the corpus luteum inhibiting factor. Israel and Cannon state that such a hormonal deficiency would have to manifest itself in a deficient formation of endometrium. Mazer found that 14 out of 20 patients with dysmenorrhea have normal endometrial progesterin phase. According to Israel, a neurogenic basis has been advanced by some authors who ascribe the etiology of primary dysmenorrhea to an abnormal reactivity of the cervical nerves, leading to spasm of the circular musculature. On this

basis, superior hypogastric plexus resection has been evolved. Davis, in 1936, blocked the Lee-Frankenhäuser plexus by means of 1 c.c. of 95 per cent alcohol and cured six, but she states that it was not without danger. Long recognized that improvement follows administration of thyroid in selected cases. Hertzler and his school speak of 'goiterous dysmenorrhea,' which they attribute to an interstitial thyrotoxicosis. Fluhmann reports a normal peak of estrogen concentration in the blood from eight to fifteen days before menstruation, with a frequent secondary rise just before, or at the time, of the menses. In 19 dysmenorrheic patients, blood estrogen failed to show any consistent departure from normal, either in amount or type of curve. He states that there are three categories of theories of cause of dysmenorrhea which are based on disturbances of ovarian hormones: (1) Deficiency of estrogen; (2) an excess of estrogen or a deficiency of progesterin; (3) overactivity of progesterin.

As to the deficiency of estrogen, the association of dysmenorrhea with hypoplasia uteri, oligomenorrhea and hypomenorrhea early led to the belief that it may be due to hypoovarian condition. Castration produces degenerative changes in the ganglia of Frankenhäuser, which may be corrected by estrogen administration. Consequently, it was suggested that a lack of sufficient estrogen causes disturbances which affect the sympathetic nerve supply of the uterus, whereupon dysmenorrhea ensues. This is not compatible with two observations: (1) Dysmenorrheic women do not show a diminished estrogen; (2) existence of a hypoplastic uterus as evidence of ovarian deficiency is demonstrable in a limited number of cases only.

As to the excess of estrin or progesterin deficiency, estrin stimulates uterine contractions. It was found that progressive muscular activity during the estrin phase was quite pronounced, while in the postovulatory or progesterin stage it is quiescent. The objections to this theory were: (a) An overactivity of estrogenic hormone uninhibited by progesterin is completely fulfilled in hyperplasia endometrii, but the bleeding in this condition is almost always painless; (b) hyperestrinism in the blood at the time of menstruation is not more frequent than in women without dysmenorrhea. However, Katz and Parker, using the Frankenhäuser-Goldberger test, found a higher level of estrogenic substances in the blood of a large percentage of dysmenorrheic patients; (c) the peak of estrin and uterine contractions is reached at the time of ovulation, but except for women with 'Mittelschmerz' dysmenorrhea, patients do not have pain at this time; (d) a deficiency of corpus luteum is difficult to understand as a cause since there is normally a deficiency at this time. (It undergoes degeneration two or three days before menstruation and lack of progesterin is indicated by absence of pregnanediol in urine).

As to the excess of progestin, Cannon assumes that dysmenorrhea resulting from macroscopic separation of endometrial fragments instead of the usual molecular degeneration is fundamentally due to overactivity of corpus luteum hormone, which is in turn due to overactivity of the luteinizing hormone of the anterior pituitary body. However, progestin disappears one or two days before menstruation and excessive doses do not lead to abnormal desquamation of the endometrium.

Schwarz and Smith divide dysmenorrhea into three classes: An organic form, depending on obstruction, a congestive and a neuralgic form. Schroeder thinks that there is an excessive irritation of the vegetative nervous system by toxic substances, evoked by the function of menstruation, and Graves suggests that this theory is supported by the relief secured from the administration of atropine. It has also been shown that the application of cocaine to the tuberculum septi, designated as the genital spot of the nose, has relieved dysmenorrhea. Schwarz reported 12 cases with complete relief in eight and partial in four after eliminating causative agents from the diet.

With these theories, we are left many on which to work, none of which are applicable to all cases. I heartily agree with Clow of England who, in a study of 15,000 women, allowed the patients to continue their daily tepid baths and postural exercises, and had less dysmenorrhea after a year of such treatment. I believe that we will accomplish more by starting earlier on these patients. We believe in some, at least, that there is a congestion within the pelvis prior to and during menstruation which blocks the cervical canal and probably accounts for some cases of dysmenorrhea.

*The Conservative Management of Dysmenorrhea* (Dr. R. E. Rougelot): Since speculation as to the etiology of dysmenorrhea is still rife, the well-known medical axiom that the number of therapeutic methods in use should be legion is well borne out.

Beginning with the patent medicines such as vegetable compounds, long condemned but still used by some of the more gullible, the list of agents used runs through the pharmacopeia, including iodides, analgesics, antispasmodics, sedatives and narcotics, while other treatments include physiotherapy, psychotherapy, endocrine therapy, x-ray, insulin therapy, surgery, and various other therapies too numerous to mention, some related to medicine, others related to folk lore and superstition so closely attached to the menstrual and sexual life of woman.

To get back on firmer ground, we must remember that we are dealing with a symptom, like hypertension or angina, most likely part of a disease complex whose further ramifications may be revealed in the light of future study, and that the primary type known as essential dysmenorrhea, may at some time be retired into a category in relation to other conditions similar to that in which

the present types of acquired or secondary dysmenorrhea are now placed. Inasmuch as the acquired type usually has its origin in some well-defined or evident pelvic pathology in which the menstrual period causes exacerbation with attendant pain calling for appropriate and indicated treatment, we propose in this paper to confine our remarks to the essential type, and, without too much discussion of etiology, carry over to a consideration of those conservative measures in use today which seem to give workable results in the relief of this troublesome condition. It is conceived that primary or essential dysmenorrhea is associated immediately with increased contractility of the uterus and perhaps a lowered threshold for pain, since normal women may show similar uterine contractions without experiencing pain. That muscular contraction causes pain is well borne out by recalling the severe suffering experienced in intestinal cramps or the discomfort of a cramped leg muscle. And indeed experimental workers such as Novak and Reynolds, Knaus, Lackner, and others, have concluded that there is a rather close connection between exaggerated uterine contractility and primary dysmenorrhea. The presence of a hypoplastic uterus, a spastic cervix, or a congested endometrium, does not obviate the fact of increased contractility, but helps explain why the uterus exerts itself in an effort to overcome these conditions.

Moir suggested from experimental observation in which he noticed that arterial pulsation was absent during uterine contraction, that the pain might be associated with ischemia of the uterus similar to the heart in angina pectoris, or the skeletal muscle in intermittent claudication; while Lackner, in this country, has not been able to substantiate this, and Elden and Wilson feel that some of the pain may be due to a lowered sympathetic threshold.

Dysmenorrhea, literally - difficult - monthly-flow, has an incidence ranging from 22 to 50 per cent. It is not a regular monthly occurrence and is not necessarily concomitant with the menarche, a point on which many claim a psychogenic origin. Symptoms are not confined to the uterus but may include headache, nervousness, anorexia, nausea and even diarrhea. Pain is confined to the day or so before the flow and is usually relieved when the flow is established. This time corresponds with the point at which corpus luteum influence is on the wane, and is the basis for progesterone therapy.

The treatment of the immediate attack of dysmenorrhea is symptomatic, and usually suffices. Of the various analgesics, aspirin or a combination of acetanilid and acetphenetidin, will give good results. Viburnum has long enjoyed a reputation as antidysmenorrheic, and Parke-Davis' Liquor Sedans, of which hydrastis is the chief ingredient, has wide use. Perhaps the alcoholic content of many patent medicines is the most active ingredient, instead of the well-advertised herbs.

Iodides are recommended by some, and calcium therapy has taken the fancy of others for its reputed relaxing effect on muscle. Antispasmodics have enjoyed a wide use among which benzyl benzoate, hyoscyamus and atropine are to be noted. The latter, most often employed as the tincture of belladonna, is given in doses of ten drops every four hours, either alone or in combination with some sedative, such as phenobarbital. At times, codeine is necessary in one-fourth or one-half grain doses, but only for severe cases. It has been my experience that nurses use codeine more than any other group, probably because of its availability. Morphine is used occasionally, but not without reluctance. A common prescription said to give good results, at Stephens' College, Missouri, consists of: Camphor monobromate gr. ss; atropine sulphate gr. 1/500; papaverine hydrochloride gr. ¼; acetphenetidin; acetyl salicylic acid aa gr. iii; M et ft caps as above.

After the symptoms subside, one must attempt to obtain permanent relief of the underlying condition. Every patient should have the benefit of a thorough history and physical examination, including the necessary laboratory study and a basal metabolism test if feasible. Occasionally, uterosalpingography is done and every effort must be made to be sure that one is dealing with a functional type and that no underlying pathology is overlooked. The patient's general health must not be neglected. Attention to bowels, proper mental relaxation, avoidance of fatigue, proper hygiene, correction of poor posture, clearing up a secondary anemia, a balanced diet usually high in vitamins, a change in climate, systematic exercise, and out-of-door activities all promote the patient's well being and improve the nervous and mental makeup. German investigators take the radical view that functional dysmenorrhea is of psychic origin and treat it accordingly, and Mathieu feels that many patients require a psychiatrist. He states that all young girls approach the menarche with fear induced by what they have been told about menstruation and by the way they have been prepared for it. There is no doubt that many women have a wrong attitude towards menstruation, and that pain or a consciousness of subthreshold feelings is exaggerated, or perhaps the period is used as a defense mechanism to escape some unpleasant situation. Consequently, one should evaluate the nervous background of his patients in order to eliminate or treat this factor. There is still a great deal of controversy as to the ill or beneficial results of exercise. The results obtained with this method of treatment are surprisingly good. Alice Clow, at a girls' school in England, reports that the proper mental attitude coupled with outdoor activities, such as competitive sports and a daily hot bath, has reduced dysmenorrhea in 75 per cent of hundreds of her cases among young women and girls.

Brown has adopted a similar procedure at a girls' school over here, with good results. The assumption is that exercise increases circulation, thereby allaying nerve irritation and improving nutrition. Other investigators in Japan and Italy take the opposite view that exercise is not beneficial and instead of relieving pain increases the flow while such activities as swimming may actually check it due to the chilling of the body.

Occasionally, one is tempted to treat the patient on an allergic basis. Schwarz and Smith report on five women with food sensitivity and dysmenorrhea which was relieved by elimination diet. However, Tuft states that it is the exception rather than the rule and perhaps this is substantiated to some extent by the fact that food allergy is present in a large proportion of women who do not suffer particularly from dysmenorrhea. At times insulin has been used with good results, the rationale being that it improves the uterine metabolism, but this treatment is largely discontinued. With the development of endocrines, it was but natural that they should be tried on this condition which has been suspected of being of endocrine origin for many years.

Fluhmann, in a study of 19 women with primary dysmenorrhea, found that the blood estrogen level showed no consistent departure from normal either in the amount of estrogen present, or in the type of curves obtained, and concluded that there are serious objections to the acceptance of any theories which seek to explain the cause of primary dysmenorrhea on the basis of a deficiency or excess of either estrogen or progesterin.

It may be well to state here that oral therapy, with the various preparations which glut the market, is unwarranted both from a consideration of their efficiency and from the expense involved. When estrogenic hormones became available, it was but natural that it should be tried on dysmenorrhea, and indeed many reports are still favoring its use. However, in the light of our present knowledge that estrogenic hormone actually sensitizes the uterus to pituitary extract, thereby rendering the muscle more contractile, there seems but little indication for its use except where there is a hypoplasia of the uterus. We therefore attempt, by substitution therapy, to stimulate uterine growth and, when used, such preparations as theelin, amniotin, emmenin, or progynon B, are administered hypodermically in doses of 10,000 units, twice a week for several months, while the uterus is checked at intervals for increase in size. Where there is evidence of hypothyroid activity, the desiccated gland is given in appropriate dosage in proportion to the lowered metabolism. Of all the treatments for dysmenorrhea, however, progesterone therapy is coming into its own. There is sound reasoning for its use, based on careful experimental work, and apparently better results are obtained with this hormone than any of the others.



Its use is predicated on the fact that corpus luteum definitely lessens uterine contractility. Elden and Wilson were able to give complete relief to 47 per cent of their patients and 11.7 per cent partial relief, using dosages of progesterone ranging from 2/25 to 1 rabbit unit, given three to six days before the menses, in single or divided doses. It is noteworthy that there was no effect on the character or duration of the menstrual period. These results have been confirmed by others including careful experiments with intrauterine balloon, and kymograph tracings by Lackner, Soskin and Krohn. Our department is also using progesterone in doses usually of one-half to one rabbit unit daily, beginning about three or four days before menstruation, and continuing into the period. It must be remembered that this type of therapy is at best temporary, and substitutional in nature.

Since the development of the masculine hormone, testosterone propionate, gynecologists have used it because of its similarity, chemically, to progesterone. Robinstein and Arbarbanel found antuitrin S disappointing and experimented with testosterone because it depresses pituitary gonadotropic secretion and inhibits ovulation, leading to a suppression of estrogen formation and, in addition, favors luteinization and maintenance of the corpus luteum increasing its progesterone effect, leading to myometrial relaxation, myometrial growth through its trophic effect and progesteronal response in the endometrium.

In my opinion, however, testosterone has no place in this disease since it does depress pituitary gonadotropic secretion and inhibits ovulation and because we do not know what the ultimate effect of a masculinizing hormone might be in the young women so treated. Of late, x-ray irradiation of the pituitary has been used with excellent results obtained by Katz and Parker, using it either alone or in combination with gonadotropic luteinizing substance.

We may conclude then that the treatment of dysmenorrhea is still an open question subject to much debate and experimentation on a psychologic, physiologic or endocrine viewpoint but that of late accumulated evidence points favorably to its being of endocrine origin, while the ultimate solution in the light of intense modern scientific study rests perhaps not too far in the future.

*The Surgical Treatment of Dysmenorrhea with Especial Reference to the Anatomy and Surgery of the Presacral Nerve* (Dr. B. B. Weinstein): The cerebral fecundity of the theorist on causes of dysmenorrhea has only been rivaled by the prolific suggestions of the therapist. I deeply appreciate Dr. Countiss' and Dr. Rougelot's fine expositions which relieve me of the necessity of reviewing this material. Suffice it to say when the general practitioner and the internist finally yield their patients to the gynecologist and when the gynecologist finally selects some method of surgical

therapy, all of the simpler modes of treatment have been exhausted.

Dysmenorrheas may be divided into primary and secondary types. The secondary type is incident to some demonstrable pelvic pathology and when the pathology is adequately dealt with the dysmenorrhea abates. In the time allotted, it would be impossible to review the now standard surgical procedure for the correction of displacements of the uterus, cervical stenosis, uterine leiomyomata, and endometriosis which are the lesions commonly associated with secondary dysmenorrhea. The surgical therapy of secondary dysmenorrhea will therefore be dismissed with the comment that correction of the underlying pathology in most cases effectively relieves the dysmenorrhea.

Essential, idiopathic, or primary dysmenorrhea may occur in association with organic pelvic pathology, but is not secondary to it, and frequently exists independently.

Our surgical armamentarium as applied to primary dysmenorrhea is rather limited. The simplest procedure is dilatation and curettage. An appreciable number of cases are benefited by this alone. In another group of cases dilatation and curettage followed by insertion of a stem pessary will give relief. When these procedures have been tried, and the dysmenorrhea persists, with the pain referred to the rectum, coccyx, sacrum and anus, the case is one in which some form of intervention on the sympathetics may be profitably tried.

A variety of procedures on the sympathetics have been suggested since Jaboulay in 1898 first advocated posterior approach to the pelvic sympathetics. The following year Ruggi suggested the transabdominal approach with resection of the ovario-uterine plexus. Neither of these suggestions was favorably received and in 1913 Leriche began his work on periarterial sympathectomy of the hypogastrics. Its publication in 1921 was followed by successful reports, but the difficulty of procedure was a deterrent to its universal applicability, and in 1925 Cotte suggested the simpler resection of the superior hypogastric plexus which procedure was seized upon avidly and followed by enthusiastic reports.

As Cotte's operation was widely practiced there developed a demand for an investigation of the anatomy of the hypogastric plexus. The early work had been done by Frankenhäuser in 1867. Later came the reports of Leriche, Latarjet and Bonnet, and more recently the anatomy has been investigated by Roussel, Delmas and Lux, Hovelacque, Cotte, Dovrzaniecki and Serafin, Elaut, Davis and Labate, and many others. The report this evening will briefly consider the work of the above, and material selected from 70 dissections made by me during the past year.

Investigators soon described various patterns assumed by the superior hypogastric plexus, though earlier workers had described single nerves

and bilateral cords. Elaut described four plexus types as well as cords and single nerves. Dóvrzan-icki and Serafin describe four, while Labate has described seven patterns, all of which types I have found and in addition one more plexus type which occurs with some frequency, and has not heretofore been described. (The anatomy of the plexus and the plexus patterns were then described together with a lantern slide demonstration of the common types). As to the incidence of the plexuses, bilateral cords and single nerves, the following percentages have been recorded by various workers:

	Plexus per cent	Bilateral cords per cent	Single nerves per cent
Labate .....	84	8	8
Roussel .....	25	0	75
Delmas and Lux.....	80	0	20
Elaut .....	60	26	16
Kalberg .....	23	8	7
Learmonth .....	80	0	20
Davis .....	76	0	24
Our cases.....	88	10	2

Bergier, Morrison, Lacombe, single nerves only.

Cordier, Jianier, Bernard, Hartman-Weinberg, found plexus dominant as did Segond and Hovelacque.

In resection of the superior hypogastric plexus the midline incision seems preferable, the viscera are packed away and the interiliac trigone exposed. The peritoneum is excised and reflected and the nerve fibers identified. The entire fibrocellular tissue of the inter-iliac trigone is then removed. Extreme care should be utilized in the dissection because of the danger of injury to the middle sacral artery or to aberrant vessels or structures sometimes present in this area. The results reported have been quite good: Cotte (1929) 200 cases, 95 per cent relieved; Michon, 22 cases good results; Fontaine and Herrmann, 13 relieved out of 15; Adson, six successful cases; Counsellar and Craig, 14 cases—nine 100 per cent, two—95 per cent, three—75 per cent relieved; Abbott, eight successful cases; Donaldson, 15 successful out of 16; Graffagnino, six successful cases. There were many other reports in the literature which I have abstracted but have not time to present here.

In a thin subject with a shallow pelvis the procedure is extremely simple, but it is sometimes quite difficult in an obese individual with a deep pelvis. However, most of the difficulties with the procedure are concerned with anatomic anomalies. Davis reports three cases and I have seen another of aberrant ureter. There is frequently an anomalous vein running from the left common iliac vein to the pelvic wall, which may be easily injured. Injury to the middle sacral artery is frequent, and occasionally it is mistaken for a "presacral nerve," and ligated. The deviation of the left iliac vein medially causes it to project into the

trigone where its fragile walls make it susceptible to damage on rough or careless manipulation. I have seen two cases of ptosis of the duodenum where the transverse duodenum crosses the interiliac trigone.

Another fact of importance is the position and relation of the sigmoid mesocolon. There are three chief types of mesosigmoidal attachment; the short mesocolon well out of the way of the field of operation which gives no difficulty; the long mesocolon which can be retracted from the field, and the long mesocolon, the leaves of which embrace the operative area. The latter type presents some technical difficulties in that one must dissect between the layers of the mesocolon to remove the plexus. This type has been found in one per cent by Labate, 15 per cent by Roussel, 8 per cent by Elaut, one per cent by Cotte, and we have seen it in 6 per cent. A note of caution in regard to dissection between the leaves of the mesocolon. The incision should be parallel to the root of the mesocolon in order to avoid extensive dissection which obscures anatomic landmarks and increases the likelihood of injury to the presacral artery (Elaut, Davis, Labate). Occasionally, the ureter has been injured. The left ureter is usually outside of the operative field. The right ureter should be identified since it crosses the field, transversing the right common iliac artery at the level of the lower border of the first sacral vertebra 3.5 cm. from the midline. Its position corresponds to the point of bifurcation of the common iliac artery. However, the right ureter adheres to the peritoneum and may be retracted with it, while the fibers of the superior hypogastric plexus remain adherent to the subjacent fibrocellular tissue.

When these anatomic anomalies are borne in mind, there remain two common difficulties, one of which is hemorrhage, chiefly from the middle sacral artery as a result of forceful severance from it, and the other is ligation of nerves resulting in neurofibromata, which have been reported several times.

Occasional failures have been reported. The foremost cause of failure seems to be improper selection of cases. I am convinced that cases are selected which have ovarian rather than superior hypogastric plexus pain. It has now been well demonstrated that the ovarian and hypogastric plexus are quite independent. This mistake can be avoided by the diagnostic lumbar block advocated by Flothow. Another cause of failure is the inadequate resection of nerve tissue. It is difficult to determine the presence of nerves by palpation, though they are visually obvious. Again, poor results are obtained because of the careless ligation of nerve fibers, with the later occurrence of neurofibromata.

Prior to sympathectomy, novocaine block may be used as a diagnostic procedure. Cassary and Bailey have reported permanent relief in one case follow-

ing diagnostic novocaine injection. Davis has recommended but has not used alcoholic block of the superior hypogastric plexus as a therapeutic procedure. Flothow boldly utilized this method and warmly advocates it. Alberta Davis reported six successful cases utilizing this procedure.

A final comment as to the use of the term "presacral nerve" which I wish to condemn strongly is, as has been demonstrated, that the superior hypogastric plexus is really rarely a single nerve, and is never presacral. It is usually a prelumbar plexus.

In conclusion, I may state the following: (1)

There are a certain number of primary dysmenorrheas which may be relieved by dilatation and curettage or dilatation and curettage and stem pessary. (2) In a group of dysmenorrheas relieved in no other manner resection of the superior hypogastric plexus is a procedure which gives good results in adequate hands. (3) The anatomy of the region has been discussed with comments on seventy additional dissections. Stress has been placed on the variation in plexus patterns, and the anomalies of the region. (4) The utilization of novocaine block of the superior hypogastric plexus as a diagnostic aid, and of alcoholic block as a therapeutic measure, has been discussed.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

- July 3. Board of Directors, Orleans Parish Medical Society, 8 p. m.  
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
- July 5. Radio Talk, Orleans Parish Medical Society, WDSU, 8:15 to 8:30 a. m.  
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Hutchinson Memorial Clinic Staff, 8 p. m.
- July 6. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- July 10. Orleans Parish Medical Society, 8 p. m.  
Second Quarterly Executive Meeting. Following this meeting the Society adjourns for summer recess.
- July 12. Radio Talk, Orleans Parish Medical Society, WDSU, 8:15 to 8:30 a. m.  
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
- July 13. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- July 19. Radio Talk, Orleans Parish Medical Society, WDSU, 8:15 to 8:30 a. m.  
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
- July 20. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- July 26. Radio Talk, Orleans Parish Medical Society, WDSU, 8:15 to 8:30 a. m.  
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
- July 27. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

clinical meeting with the United States Marine Hospital.

At the meeting of June 8, the following program was presented:

The Relation of Histamine to Asthma and Urticaria.

By.....Dr. Allan Eustis.

Discussed by Drs. N. K. Edrington, J. H. Musser, F. F. Boyce, and closed by Dr. Eustis.

Use of Physiotherapy in Connection with Fractures and Injuries Involving the Joints.

By.....Dr. Guy A. Caldwell.

Discussed by Drs. R. H. Alldredge, N. H. Polmer and closed by Dr. Caldwell.

Hysterosalpingography.

By.....Dr. Thomas B. Sellers.

Discussed by Dr. P. J. Carter and closed by Dr. Sellers.

Final favorable action was taken on the amendment to Article 1, Section 2, of the By-Laws as follows:

*"ACTIVE MEMBERS:* Eligibility—Any reputable white physician residing in the Parishes of the First and Second Congressional Districts who is a natural-born or naturalized citizen of the United States and who is a graduate of a regular school of medicine and who is legally qualified under the medical law of Louisiana to practice medicine and surgery; also any reputable white physician who is a natural-born or naturalized citizen of the United States connected in an all time capacity with a recognized medical school or recognized approved institutional work of the First and Second Congressional Districts and who is not actively engaged in the practice of medicine."

The following program was presented at the clinical meeting at the United States Marine Hospital on June 26:

During the month of June, the Society held its regular scientific meeting and a special combined

1. Hodgkin's Disease: An Experimental Study of the Etiology.

By.....Dr. J. G. Pasternack.

2. Lymphogranuloma Inguinale: Treatment with Sulfanilamide and by Pyretotherapy.

By.....Dr. J. A. Trautman.

General discussion followed.

Refreshments were served at the conclusion of the meeting.

Dr. Henry Leidenheimer, Jr., Hugh Page Newbill and B. Bernard Weinstein were elected to Active Membership.

Dr. Daniel N. Silverman attended the forty-second annual meeting of the American Gastroenterological Society at Atlantic City, May 1-2.

Dr. Wiley R. Buffington was a guest speaker before the Texas State Medical Association at San Antonio, May 8.

The following members attended the meeting of the American Psychiatric Association at St. Louis, May 8-12: Drs. Lewis A. Golden, Martha W. MacDonald, Walter J. Otis, Theodore A. Watters and Erwin Wexberg. Dr. Otis also attended the annual meeting of the Catholic Physicians' Guild in St. Louis.

Dr. Sydney Jacobs and Dr. William Harvey Perkins spoke at the 1939 meeting of the Council of Social Agencies on June 1.

Dr. Lewis A. Golden has been certified by the American Board of Neurology and Psychiatry.

Dr. Joseph C. Menendez gave the principal address at the Memorial Day services held at Biloxi on May 30, sponsored by the Veterans of Foreign Wars of the United States.

Dr. Rudolph Matas was awarded a certificate of honorary membership in the American Association of the History of Medicine at the sixth annual meeting of the History of Medicine Society of Tulane University. Faculty members presented honorary memberships in the local society were Drs. C. C. Bass, Elizabeth Bass, Maxwell Lapham, Ernest Carroll Faust, Isidore L. Robbins, E. Perry Thomas and Roy H. Turner.

Dr. Francis L. Jaubert was re-elected president of the Board of Directors of the Louisiana Society for Crippled Children at the May 27 meeting. Dr. H. Theodore Simon was among the speakers at this meeting.

Elected to the Board of Directors of the New Orleans Pure Milk Society are: Dr. Roy E. de la Houssaye, president, and Dr. E. A. Socola, vice-president.

Dr. Wilbur C. Smith has received a degree of Doctor of Science from Wake Forest College, North Carolina.

Dr. Béla Halpert read a paper before the National Gastroenterological Association in New York, June 1-2.

Dr. Dean H. Echols was elected to the Board of Directors of the University of Michigan Club of New Orleans.

Dr. Frederick Boyce announces the opening of his new offices at 1215 Union Building.

Drs. John S. Couret and Edwin H. Lawson announce the opening of their laboratory of clinical pathology at 952 Canal Bank Building.

Senior Surgeon William H. Slaughter will leave shortly to assume charge of the United States Marine Hospital at Chicago, and Past Assistant Surgeon John D. Lane, Jr., will come to New Orleans.

Dr. Guy A. Caldwell has been named Secretary of the Section on Orthopedic Surgery of the American Medical Association.

Dr. John H. Musser was re-elected a member of the American Board of Internal Medicine.

Drs. Allan Eustis, John H. Musser and Alton Ochsner attended the meeting of the Tennessee Valley Post Graduate Medical Assembly, Knoxville, Tennessee on June 28.

Miss Mary Louise Marshall attended the forty-first annual meeting of the Medical Library Association at the Academy of Medicine, Northern Newark, New Jersey, June 27-29. Miss Marshall is a member of the executive committee of this association.

Dr. Alton Ochsner addressed the Mississippi Dental Society, June 12, in Gulfport.

Drs. Eugene Countiss, Mims Gage and George Roeling attended the Tri-State County Medical Meeting at Hattiesburg.

TREASURER'S REPORT

Actual book balance 4/30/39.....	\$4,952.64
May credits .....	\$ 537.22
<hr/>	
Total credits .....	\$5,489.86
May expenditures .....	\$ 853.08
<hr/>	
Actual book balance 5/31/39.....	\$4,636.78

LIBRARIAN'S REPORT

During May, 84 volumes have been added to the Library. Of these 54 were received by gift, 15 by binding and 15 from the New Orleans Medical and Surgical Journal. The Library has loaned to physicians during May, 1,089 books and journals, approximately two to each member of the Society. In addition 1,012 volumes have been loaned to students for overnight use, a total circulation of 2,101 for the month.

Members of the staff have collected material on the following subjects during May:

- Obstruction and embolism of the retinal artery
- Pyloric stenosis in infancy
- Use of Vitamin B in multiple sclerosis
- Painless hematuria
- Intraspinous use of Vitamin B
- Manic-depressive psychoses in identical twins
- Medullary tumors of the adrenals
- Sulfapyridine
- Cryptococcus
- Death from lipo-vaccine
- Diseases due to Rickettsia
- Perlèche

NEW BOOKS

- White, W. A.: Twentieth Century Psychiatry, 1930.
- Weihofen, Henry: Insanity as a Defense in Criminal Law, 1933.
- Williams, F. E.: Adolescence, 1930.
- Wolfe, W. B.: How to Be Happy Though Human, 1931.
- White, J. C.: Autonomic Nervous System, 1935.
- Practical Medicine Series: Eye, Ear, Nose and Throat, 1930. Dermatology-urology, 1931.
- Scudder, C. I.: Treatment of Fractures, 1938.
- Balyeat, R. M.: Allergic Diseases, 1938.
- Pelouze, S.: Gonorrhoea in the Male and Female, 1938.
- Allen, Edgar, ed.: Sex and Internal Secretions, 1939.
- Tidy, N. M.: Massage and Remedial Exercises, 1939.
- Lapham, M. E.: Maternity Care in a Rural Community, 1938.
- Marie, J. S. F.: English, German, French, Italian, Spanish Medical Vocabulary, 1939.
- Crownhart, J. T.: Sickness Insurance in Europe, 1938.
- Murphy, W. P.: Anemia in Practice, 1939.
- Barsky, A. J.: Plastic Surgery, 1938.
- Friendenwald, J.: Clinics on Secondary Gastric Disorder, 1938.
- Blum, Sanford: Pediatric Symptomatology, 1938.
- Stimson, B. B.: Manual of Fractures and Dislocations, 1939.
- Davidson, F. R.: Manual of Toxicology, 1938.
- Perkins, Harvey W.: Causes and Prevention of Disease, 1938.

Gilbert C. Anderson, M. D.,  
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
East and West Feliciana	First Wednesday in June	Jackson.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

## A MINUTE OF THE JOURNAL COMMITTEE

It is felt that the death of the Chairman of the Journal Committee, Dr. William H. Seemann, will prove a great loss to the Committee and to the entire State Medical Society. Dr. Seemann had always been keenly interested in organized medicine and was very active in all of its undertakings. He graduated from Tulane University School of Medicine in 1900 and immediately affiliated with the Orleans Parish Medical Society and the Louisiana State Medical Society. He served as Treasurer of the Orleans Parish Medical Society in 1902 and 1903 and as President in 1909. In 1916-1917 he was President of the State Medical Society and represented this organization in the House of Delegates of the American Medical Association for more than twenty years. On April 11, 1929 he was elected as a member of the Journal Committee, serving as Chairman from May, 1935 until his death on November 19, 1938. His service to the Journal Committee will long be remembered and the result of his efforts will have a lasting effect on the future welfare of our Journal.

## LAFOURCHE VALLEY MEDICAL SOCIETY

The Lafourche Valley Medical Society held its regular quarterly meeting at the Houma Country Club on June 21, 1939. The following program of scientific papers was presented: "Preventive Medicine: A Plea for Its Greater Popularization by the General Practitioner" by Dr. H. C. Danseureau, of Labadieville; "Treatment of Acute Disorders Due to Some of the Chemical and Physical Agents" by Dr. Louis A. Monte, of New Orleans; "Remediable Factors in Heart Disease" by Dr. Edgar Hull, of New Orleans.

Percy H. LeBlanc, M. D., Sec.

## APPROACHING MEETINGS

The eighteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held September 5-8, 1939 at the Hotel Pennsylvania, New York City. Preceding these sessions the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians, August 30-September 2.

The ninth annual Convention of the Biological Photographic Association will be held September 14-16, at the Mellon Institute for Industrial Research, Pittsburgh, Pa. The program will be of interest to scientific photographers, scientists who use photography as an aid in their work, teachers in the biologic fields, technical experts and serious amateurs.

The University of Wisconsin Medical School is to conduct an Institute for the Consideration of the Blood and Blood-Forming Organs, September

4-6, 1939. The program is to include papers and round-table discussions by European and American workers in the field of hematology. Formal papers will be presented, among others, by Dr. L. J. Witts, Oxford, England, "Anemias Due to Iron Deficiency," Dr. E. Meulengracht, Copenhagen, Denmark, "Some Etiological Factors in Pernicious Anemia and Related Macrocytic Anemias," Dr. George R. Minot, Boston, "Anemias of Nutritional Deficiency," Dr. Russell L. Haden, Cleveland, "The Nature of the Hemolytic Anemias"; Dr. Edward B. Krumbhaar, Philadelphia, "Hodgkin's Disease"; Prof. Hal Downey, Minneapolis, "Infectious Mononucleosis."

Physicians and others who are interested are cordially invited. A detailed program may be obtained by addressing Dr. Ovid O. Meyer, Chairman of Program Committee, University of Wisconsin Medical School, Madison, Wisconsin.

An International Course in Malariology, under the direction of Dr. G. Bastianelli, will be given in Rome, July 25-September 20, 1939. The program of this course may be consulted in the office of the Journal, or further information may be secured from G. G. Chiavari, Royal Consul of Italy, 4630 St. Charles Avenue, New Orleans.

The American Optical Company has recently issued a booklet entitled "The Ophthalmoscope and Studies of the Fundus Oculi in Important Pathological Conditions." A copy of this booklet may be secured without obligation by writing to the company at Southbridge, Massachusetts.

## AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

At the recent meeting in St. Louis, 259 candidates were examined, 29 of whom failed. Future examination fees will be \$75.00. The next examination, written for Group B, will be held Saturday, December 2, 1939. Applications must be on file in the secretary's office before October 4. The general oral examination will be held in Atlantic City, June 7-9, 1940.

A physician is needed in Cloutierville, Louisiana. For further information, call office of the Louisiana State Medical Society, Magnolia 3281.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending May 13, there were 140 deaths in the City of New Orleans. This was an increase of 24 over the previous week. Thirteen of the deaths were in infants under one year of age. The following week, closing May 20, found a slight increase in the number of deaths. There were 147 in this particular week, of which

93 occurred in the white and 54 in the negro population, as contrasted with 79 of the former and 61 of the latter in the previous week. There were 10 deaths in infants. There was a fairly sharp drop in the number of deaths reported for the next week as only 130 deaths were listed, divided 78 white and 52 negro. Only 12 infants succumbed in this period of time. The health of New Orleans was even better than the previous week when the June 3 figures were reported. In this week there were only 120 deaths, 75 in the white and 45 in the negro section of the population. Fourteen infants under one year of age died this week.

#### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the week ending May 20, syphilis, according to its happy custom, led all reported diseases with 127 cases listed. Other diseases occurring in numbers greater than 10 included measles with 67 cases, pneumonia with 44, whooping cough with 42, pulmonary tuberculosis with 29, cancer with 23, hookworm infestation and chickenpox with 20 each, scarlet fever with 16, gonorrhoea and typhoid fever with 15 each, and diphtheria with 13. Of the 15 cases of typhoid fever, four were reported from Richland and four from Orleans, one of which was imported. A case of typhus fever was reported from Acadia and one of poliomyelitis from Orleans. Two cases of undulant fever were reported this week. For the twenty-first week, ending May 27, measles sprang to the front as the most frequently reported disease this week; followed by 96 cases of syphilis, 43 each of pneumonia and gonorrhoea, 39 of pulmonary tuberculosis, 28 of hookworm infestation, 26 of whooping cough, 18 each of cancer and malaria, 12 of chickenpox and 10 of scarlet fever. Of the unusual cases recorded this week were typhus fever, one case each from Iberia and Orleans, and one case of tularemia, as well as a case of smallpox. For the week which ended in early June, there were recorded 156 cases of syphilis, 79 of measles, 54 of pneumonia, 34 of pulmonary tuberculosis, 27 of malaria, 26 each of hookworm infestation and cancer, 12 of chickenpox and 10 each of typhoid fever and diphtheria. Three cases of typhoid fever were recorded in Bossier this week and two in Concordia. For the week which terminated June 10, syphilis again led all other diseases with 271 instances. The mild epidemic of measles seemed to be subsiding somewhat, only 74 cases being listed this week. The incidence of whooping cough was about three times the five-year average for this disease. There were 63 cases of pulmonary tuberculosis reported to the State Board of Health. This is a larger number than usual, but the number of cases follows more closely to the five-year average than any other.

Thirty-nine cases of pneumonia were reported, 35 of malaria, 31 of cancer, 27 of hookworm infestation, 17 of gonorrhoea, 11 of diphtheria and 10 of typhoid fever. The typhoid fever cases this week were scattered all over the state. A case of poliomyelitis was found in Acadia and one of tularemia in Caddo. For the twenty-fourth week of the year, ending June 17, there were reported 107 cases of syphilis, 62 of pulmonary tuberculosis, 52 of pneumonia, 29 of cancer, 24 of malaria, 22 of gonorrhoea, 14 of measles and 10 of typhoid fever. The only rather unusual disease, but one which is becoming more frequently reported, was undulant fever, with two cases, one each from Avoyelles and Franklin. It is rather interesting that only two cases of pellagra were found in the State of Louisiana, as contrasted with five in the previous week. This apparently is a disease which is diminishing in its frequency. Dengue fever has not been reported for many months. Ophthalmia neonatorum, bubonic plague, rabies, typhus fever and anthrax are only occasionally reported. Bubonic plague is almost unheard of amongst the list of diseases which are required by law to be reported to the State Board of Health.

#### WOMAN'S AUXILIARY

##### Louisiana State Medical Society

- President—Mrs S. M. Blackshear, New Orleans.  
 President-elect—Mrs. Roy Carl Young, Covington.  
 First Vice-President—Mrs. H. O. Barker, Alexandria.  
 Second Vice-President—Mrs. C. U. Johnson, Monroe.  
 Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.  
 Fourth Vice-President—Mrs. T. E. Strain, Shreveport.  
 Treasurer—Mrs. W. R. Buffington, New Orleans.  
 Recording Secretary—Mrs. E. C. Melton, Plaquemine.  
 Corresponding Secretary—Mrs. C. R. Hume, New Orleans.  
 Parliamentarian—Mrs. A. A. Herold, Shreveport.  
 Historian—Mrs. Joseph Bath, Natchitoches.

With the recent American Medical Convention still in our minds, we will read with much interest this Convention Letter from Mrs. Frederick G. Ellis, Past President of Louisiana State Auxiliary, also the report of Auxiliary Exhibits from Mrs. Clifford P. Rutledge, President of Caddo Parish Auxiliary.

We are greatly indebted to each of these members for giving us so complete a picture of this important meeting.

## NATIONAL AUXILIARY LETTER

Dear Fellow Members:

Once again I am settled into the old rut of household duties after a very hot and strenuous five days in St. Louis at the meeting of the Woman's Auxiliary to the American Medical Association.

The Chase Hotel, headquarters of the woman's division, was a very busy and crowded place as you will understand when I tell you the registration reached an all-time high of 1209 women, 35 of whom were National Board Members, 89 delegates, 22 alternates, 589 members and 474 guests. Louisiana, besides having two members on the National Board, had a full quota of delegates and alternates, a record we have never before attained.

On Sunday, May 14, Mrs. Charles C. Tomlinson, National President, was honored with a tea in the home of Mrs. Willard Bartlett, 53 Westmorland Place, and on Monday morning, May 15, the Board of Directors meeting was held in the Regency Room of Hotel Chase. In the afternoon the guests were taken for a delightful ride and visits were made to some very lovely private gardens, where tea and punch were served.

On Tuesday, May 16, the day started with a Southern breakfast at the Hotel Chase, the President of the Southern Auxiliary, Mrs. Willis K. West of Oklahoma City, presiding and acting as toastmistress. Mrs. West will be remembered by most Louisianians as the former Miss Miriam McGuffin of Shreveport.

From breakfast the members repaired to the Regency Room for the formal opening of the convention. Mrs. Charles C. Tomlinson called the meeting to order and, after the Invocation was given by Rev. Dr. McIvor, introduced Mrs. Willard Bartlett, the general chairman of the convention, who told of the plans made for our pleasure and comfort. The address of welcome and response were beautifully given and were followed by a most fitting memorial service for those members who during the year had joined the hosts in the "great beyond."

After the usual convention roll call the National President read her address in her own pleasing and interesting manner. Reports of officers and committee chairmen filled the balance of the morning. To me the most interesting items were:

1. The growing interest in and the increased subscriptions to *Hygeia*.
2. The legislative program in conjunction with public relations work in giving lectures and instruction to the members and the lay public on conditions which confront the doctors today should socialized medicine be adopted in this country, and the effect of such legislation on the general public.
3. The membership award went to New York State with 63 per cent increase. Later in the meeting it was voted to discontinue this annual award as the basis of figuring the winner had become too complicated.

4. The Organization Chairman, Mrs. Frank Haggard of San Antonio, only partly finished reading her report, she being allotted ten minutes just the same as all other officers received and decidedly not sufficient time for such an important report. Mrs. Haggard did not get to the Southern states, so please read it when the national books of convention proceedings reach each auxiliary. I am hoping that she left the best till the last for I feel sure the Southern states have done splendidly in this phase of our work.

5. The Chairman of Press and Publicity was not at the convention and I for one was disappointed for her work was especially good in the news letters she so ably edited.

6. Mrs. V. E. Holcombe gave a very comprehensive report of the splendid programs given, based on the monthly material sent from her office. Some phase of health education was used in almost every parish auxiliary program. A number of them, cooperating with the Public Relations Chairman, had open meetings and an outstanding doctor speak on the subject.

At the conclusion of the committee reports the President-elect, Mrs. Rollo K. Packard, was presented to the assembly. Then all adjourned and were taken by bus to the St. Louis Womens' Club where a delightful luncheon was served. This luncheon was in the form of a birthday party at which all past presidents of National were honor guests. Mrs. Hibbits of Texarkana was a most gracious toastmistress.

Leaving the St. Louis Club again by bus all who wished were taken on sightseeing trips to the many interesting places in the city. Among the points of interest were the art galleries and museum, and all were pleased to have a chance to see the Lindbergh trophies which have been so widely publicised. A stop of one hour was made at the St. Louis Medical Society Building where an elaborate afternoon tea was served by the Woman's Club of the St. Louis University School of Medicine. That night all members and guests were invited to the open meeting of the American Medical Association which was held at the Municipal Auditorium.

Wednesday morning at 9 o'clock the General Session of the Auxiliary was called to order by the president. After the customary routine business was conducted the state presidents were asked to read their reports. Of the thirty-nine states organized only four failed to have a president or member there to read of their work of the past year, and these four reports were filed by the secretary. Many and varied were the activities carried on in each state and a complete report will be printed in the "Minutes and Reports of the National Auxiliary."

Time was called at 1 p. m. for the annual luncheon and the meeting called to order again at the conclusion for the remainder of the business



on hand. The nominating committee presented a slate of officers for the year and all were duly elected as presented by them. The President-elect is Mrs. V. E. Holcombe, Charleston, West Virginia. The incoming President, Mrs. Rollo K. Packard of Chicago, Illinois, was then presented and she and the following officers were installed: First Vice-President, Mrs. David W. Thomas, Lock Haven, Pennsylvania; Second Vice-President, Mrs. Otto C. Hagmeier, Seaside, Oregon; Third Vice-President, Mrs. M. B. Van Cleave, Terre Haute, Indiana; Fourth Vice-President, Mrs. W. K. West, Oklahoma City, Oklahoma; Treasurer, Mrs. E. E. Fisher, Portland, Oregon; Recording Secretary, Mrs. John L. Bauer, Brooklyn, New York; Corresponding Secretary, Mrs. Lucius Cole, River Forest, Illinois.

Thus the open meetings were concluded although Conferences on Public Relations, Program and Hygeia were held. The postconvention board meeting was held on Thursday morning.

At noon on Thursday all who had made reservations for the boat trip on the Mississippi found busses waiting to take them to the dock. We rode in state with motor police ahead, alongside and at intersections, sirens open wide, while six busses made a non-stop trip for us. For three hours we viewed the city from the river and successfully tucked away hot dogs and pop in unlimited amounts. The busses again met the delegates at the dock and drove us back to the Chase Hotel.

Everyone had to hurry and dress for the annual "Bring Your Husband Banquet" and, following this, go to the reception and ball at the Jefferson Hotel, given in honor of the President of the American Medical Society—that is, if the heat and festivities had not been too much for you. I think quite a few of us fell by the way side and I was ready for a wheel chair.

Friday was open to do as we wished and the average person seemed to be anxious to see the elaborate exhibit display. The huge St. Louis Auditorium was filled in every available space with scientific and commercial displays. Only the commercial exhibits were open to the public, the scientific section being open only for doctors and their wives on presentation of the badge.

The Louisianians were housed in widely scattered hotels which was an inconvenience in many ways as it was hard to have the usual "get togethers" always so enjoyable at our state conventions, but when one considers the registration of 7,000 doctors and 1,200 women, one can realize the hugeness of the A. M. A. I, for one, felt like the proverbial small toad in a very big puddle, but I enjoyed the experience of at least being there. The National President, Mrs. Tomlinson, whom we all know personally, was most charming and we all enjoyed meeting her again.

kindest regards to all of you.

Sincerely yours,

Edna Ellis

(Mrs. Frederick G. Ellis)

4624 Fairfield Avenue

Shreveport, Louisiana

#### NATIONAL AUXILIARY EXHIBITS

The Exhibits Committee of the Woman's Auxiliary to the American Medical Association, with Mrs. Ily R. Beir of Atlantic City as Chairman, together with the chairmen of the many states sending exhibits, should feel well repaid for the time and thought spent on this contribution to the annual A. M. A. Convention in St. Louis this year. It was the most outstanding array of exhibits yet assembled by the Woman's Auxiliary for several reasons: In the first place, the location was ideal. Adjoining the registration quarters in the beautiful Hotel Chase, the large exhibit room served also as an ante-room to the Auxiliary Convention Hall, where all who attended the meetings must pass through. Also, there were more states represented, as well as more county auxiliaries sending exhibits, which gave a larger and more representative display of activities and progress. States sending exhibits did their work so well that their contributions provided a graphic review of the progress made in auxiliary work, thus furnishing much information and many lessons for officers, delegates and members for the advancement of their own state activities.

The exhibits were well gotten up. Some were beautiful, others novel, and all were of much interest to the eye and brain, and appealed to the imagination. Several hundred visitors registered in the room, and many returned several times to study more carefully the exhibits of especial interest. Brief description of the exhibits by states, are as follows:

Arizona: Map made of beaten copper on a wood base showing the various counties.

Arkansas: Charts illustrating work done for milk fund, prevention of colds, fight on syphilis, better sanitation. Activities: Hygeia essays; research work; health promotion; student loan fund.

California: A banner of velvet and gilt with founding date "1929." Scrapbook of A. M. A. Convention at San Francisco.

Colorado: Panoramic mountain scene showing the different projects on flags carried by mountain climbers.

Florida: Scrapbook.

Illinois: A large, very attractive poster of a sailing vessel "The Good Ship A. M. A." plowing through stormy seas of public opinion toward the port of Better Understanding of the Aims of Scientific Medicine. Chart showing object of Auxiliary: preventive medicine; securing adequate medical legislation.

Indiana: Attractive charts showing work in tubercular hospital, children library.

Kansas: Year book; posters on prevention of colds.

Kentucky: Map and posters, the latter showing home of Jane Todd Crawford, now a memorial library, and Jane Todd Memorial Trail leading to Dr. McDowell's home. Beautifully illustrated book of activities.

Louisiana: Large attractive book made in chart style showing the activities of the organized parishes: Anti-tubercular and anti-cancer drives; Indigent Physicians' Fund; A. M. A. health broadcasts; Doctor's Day; medical samples; Pines Preventorium work among a group of under-privileged children.

Minnesota: Three posters showing power of the doctor's wife in the community, promotion of Hygeia, a county auxiliary's activities; six pictures of other activities. Very active Auxiliary.

Mississippi: Map of State showing counties organized. Scrapbook.

Missouri: Large bound cardboard book with title "The Three Little Pigs and How They Did It," giving the story of how they work and the many activities carried on. Scrapbook; file of clippings.

Michigan: Poster showing six divisions of stressed activities.

New Hampshire: Chart showing organized counties.

New Jersey: Map of State showing organized and unorganized counties. Very complete medical histories. Archives of the Medical Auxiliary.

New Mexico: Indian trinkets. Poster showing work done among Indians.

New York: A unique and outstanding exhibit set in a large box arranged as a stage, with figures in miniature engaged in carrying on the many projects of the different counties.

North Carolina: Map made of wood, showing organized groups by counties.

Oklahoma: Chart showing membership growth of Auxiliary; year book; scrapbook; layette; health posters.

Oregon: Map and models carved out of soap, with cards of explanation.

Pennsylvania: Museum extension project, illustrated by a model. Hygeia. Benevolence Medical Fund which was started in 1927 and now amounts to \$31,429.44.

South Dakota: Map of State outlining counties.

Texas: Models, showing a bridge leading from a dilapidated cottage in miserable surroundings to a well kept house set in beautiful grounds. The planks of the bridge which lead to the "better life" bear the names of the Auxiliary projects for advancement in health education.

Utah: A massive book of "Mother Goose on Quacks" rhymes; colorful and clever. Also a very attractive scrapbook.

Virginia: Small dolls, beautifully dressed to represent honored women of different counties. On each was hung a card showing the work done in her county. Layettes. A chart showing names of each county president and exhibit chairman.

Washington: Posters showing a large steeplechase illustrating "Basic Science Hurdles"; "Fight against Quacks"; "The Diploma Mill"; a donkey before a radio representing "radio quacker." A splendid exhibit.

Wisconsin: Scrapbooks from many counties; posters on activities; books of State archives; a display by the Visiting Nurses' Association; a massive book containing biographies of physicians from 1838 to 1938; year book. Very large and comprehensive exhibit.

Mrs. Clifford P. Rutledge.

Respectfully submitted,

Mrs. Edgar Burns,  
Press and Publicity Chairman.

## BOOK REVIEWS

*Disorders of the Blood:* By Lionel E. H. Whitby, C. V. O., M. C., M. A., M. D., (Cantab.) F. R. C. P. (Lond.), D. P. H., and C. J. C. Britton, M. D., (New Zealand), D. P. H. Philadelphia, P. Blakiston's Son and Co., 1937. Pp. 582. Price \$7.00.

In this second edition of Whitby and Britton's valuable work, many advances are reflected, in extra pages, new illustrations and changes in bibliography. The references are largely key papers, many by American writers. The authors stress the value of classifying the anemias in terms of cell size and hemoglobin concentration, as being more reliable and of more practical value than on the basis of color index. They emphasize how rare is

primary disease of the hemopoietic system and how often changes in the peripheral blood are a symptom of a disease or disorder in some other system of the body.

The content of this most excellent book covers all phases of the origin, development, function and the fate of the cells of the blood. Chapters are devoted to the causes of anemia, nature and mode of action of the hemopoietic substances, a description of the hemolytic and dyshemopoietic anemias, purpuric and hemorrhagic diseases, the leukemias and disorders of the blood and associated miscellaneous conditions such as splenomegaly and Hodgkin's disease. One chapter is devoted to the anemias of infancy and childhood and more than fifty pages

cover technic, as applied to the study and diagnosis of disorders of the blood.

Within the past few years there has been considerable interest in the subject of anemias coincident with the recent discoveries concerning the etiologic factors involved, notably disorders of the blood due to the newer chemicals.

The book is written in a pleasing style and is replete with valuable plates. As a text for students and practitioners it can be highly recommended as conservative, authoritative and comprehensive.

ELIZABETH BASS, M. D.

---

*Surgery of Oral and Facial Diseases and Malformations:* By G. v I. Brown, D. D. S., M. D., C. M., F. A. C. S. Philadelphia, Lea and Febiger, 1938. Pp. 778. Price \$10.00.

In this revised fourth edition the author has eliminated many of the earlier procedures which have passed into disuse and has included later basic procedures of proved merit. The book is adaptable as a ready reference both to the general practitioner and the specialist.

One is impressed, however, by the fact that too many conditions have been considered to permit a complete and full description of many of the conditions presented, thus detracting from its value as a text for students. Bibliographies are notably lacking. The value of this edition could have been enhanced by enlarging the section on wounds of the mouth and that on burns and scalds. The chapters dealing with diseases and surgical conditions of the bones of the face and jaws and congenital deformities of the face are particularly good.

The book is adequately illustrated, and is valuable as a ready reference.

NEAL OWENS, M. D.

---

*Concepts and Problems of Psychotherapy:* By Leonard E. Hinsie, M. D. New York, Columbia University Press, 1937. Pp. 199. Price \$2.75.

In a delightful little volume the author presents a discussion of current forms of psychotherapy. Attention is given to psychoanalysis, to the individual psychology of Adler and to the analytic psychology of Jung. In some forty pages the author gives a splendid presentation of the concepts and methods of psychobiology and the methods of therapy utilized by Adolph Meyer and his group.

The advantages and disadvantages, the indications and contraindications of the various forms of psychotherapy are pointed out. A statistical analysis of the various methods of psychiatric treatment is presented. A complete bibliography concludes the work.

This book should find a welcome place in the

library of any physician interested in the treatment and care of any of his patients' personality problems. It is unreservedly recommended and it presents in a clear fashion, devoid of any "scientific jargon," many of the facts of psychotherapy of which the physician is constantly in need.

JOHN W. BICK, M. D.

---

*Refraction of the Eye:* By Alfred Cowan, M. D. Philadelphia, Lea & Febiger, 1938. Pp. 319. Price \$4.75.

It is a pleasure to review this excellent work on an important, but neglected branch of ophthalmology. Its lack of glamour is reflected in the apathetic interest of the average oculist. The relatively rapid rise of optometry and corresponding decline of ophthalmology in refraction tells its own story.

Dr. Cowan has presented physics of lights and lenses in a thorough and comprehensive manner. The laws of refraction and reflection, as well as their applications in every day practice, are written in a very readable way. Technical subjects like the theory of Gaus, the Gulstrand schematic eye, the reduced eye of Donders, the determination of cylinders at oblique axis are presented in an exceptionally lucid style. Like the details of anatomy, they must be learned and forgotten at least seven times before they permanently stick to the memory. Even then, their adhesion in the association centers is usually lightly mucilaginous.

The chapter on visual acuity, like the first line of the, "Star Spangled Banner," is very illuminating.

The chapters on accommodation and ametropia, which together, cover about 50 pages, could possibly have been amplified, as could the technic of practical refraction. They present far more of the subject, however, than 99 in 100 ophthalmologists know. In explaining the cross cylinder, the author has very properly mentioned that it changes the cylindrical component twice as much as the spherical component. The cross cylinder would be used much less frequently if its users knew its resultant combinations.

A good retinoscopist is usually a good refractonist. The author has detailed its fundamentals and modern applications: cylinder, streak, and dynamic retinoscopy. Among the subjective methods of testing, cyclodamia, velonoskiascopy, and duochrome tests, are elucidated.

Timely is the author's presentation of contact glasses and telescopic spectacles. The publicity which has been given these novelties increases the ophthalmologist's responsibility that his patients do not buy wheelbarrows thinking they are purchasing Cadillacs.

May the second edition of this excellent work appear shortly.

CHARLES A. BAHN, M. D.

*Superfluous Hair and Its Removal:* By A. F. Niemoeller, A. B., M. A., B. S. New York, Harvest House, 1938. Pp. 155. Price \$2.00.

"Superfluous Hair and Its Removal" by A. F. Niemoeller is a 155 page discussion of causes and methods of removal of superfluous hair. The text is written for the lay person, and even goes to the point of recommending those who are not medically trained operators, such as one member of the family, operating an inexpensive apparatus on another member of the family. It does recommend against quack methods of hair removal. The average text on skin diseases, however, contains, in brief, all the medical man need know about causes of superfluous hair and its removal.

M. T. VAN STUDDIFORD, M. D.

*A Manual of Fractures and Dislocations:* By Barbara Bartlett Stimson, A. B., M. D., Med. Sc. D., F. A. C. S. Philadelphia, Lea & Febiger, 1939. Pp. 214. Price \$2.75.

The author of this book had a good motive in writing it. Such a mass of material is found in big texts on fractures that time available for the student to devote to a special type of surgery in his busy course is too little to permit him to grasp the essentials from these texts. This book is "designed as a guide to the wealth of material that is published in textbooks and articles which bewilder the student with their mass of detail." This is a very short text and necessarily its scope is very limited. The discussion of each fracture is divided under the following headings: occurrence, displacements, diagnosis, pathology, treatment, time of immobilization, prognosis and summary. Students may find it a helpful guide or an introduction to the study of fractures, but the material contained herein is too cursory to be relied upon for either school examinations or practice. For example, two pages are devoted to a discussion of treatment of fractures of the hip, that is, reduction and application of a cast, and one additional paragraph is devoted to a statement without a description of internal fixation for fracture of the neck of the femur. Interesting tables in the volume are the percentages of occurrence of fractures, that is, the relative percentage of all fractures which any special injury may cause. The illustrations, all drawings, are simple and instructive. The inevitable Bryant's triangle and Nélaton's line are illustrated. How unhelpful are these two! Obsolete, they still recur in text after text with emphasis enough to make them seem important because the

student must know how to answer some questions put to him by either an inexperienced or casual observer who has never discovered that they are usually not helpful,—that they are unreliable and simply vestiges of pre-roentgen days.

HOWARD MAHORNER, M. D.

#### PUBLICATIONS RECEIVED

The American Journal of Cancer, New York City: Cutaneous Cancer and Precancer by George M. Mackee, M. D., and Anthony C. Cipollaro, M. D.

Harvest House, New York City: Short Stature and Height Increase by C. J. Gerling.

Alfred A. Knopf, Inc., New York City: Sensible Dieting by William Engel, M. D.

Lea & Febiger, Philadelphia: Laboratory Manual of the Massachusetts General Hospital by Francis T. Hunter, M. D. Heart Patients: Their Study and Care by S. Calvin Smith, M. D., Sc. D.

J. B. Lippincott Company, Philadelphia: Diseases of the Nose and Throat by Charles J. Imperatori, M. D., F. A. C. S., and Herman J. Burman, M. D., F. A. C. S. The New International Clinics, Volume II, edited by George Morris Pierisol, M. D.

The Macmillan Company, New York City: Medical Microbiology by Kenneth L. Burdon, Ph. B., Sc. M., Ph. D.

The C. V. Mosby Company, St. Louis: The Life and Letters of Dr. William Beaumont by Jesse S. Myer, A. B., M. D. Practice of Allergy by Warren T. Vaughan, M. D.

Stanford University Press, Stanford University, California: Cancer Handbook of the Tumor Clinic, Stanford University School of Medicine, edited by Eric Liljencrantz, M. D.

W. B. Saunders Company, Philadelphia: An Introductory Guide to Biochemistry by Sidney Bliss, Ph. D. Menstrual Disorders by C. Frederic Fluhman, B. A., M. D., C. M. Endocrinology in Modern Practice by William Wolf, M. D., M. S., Ph. D. Health Officers' Manual by J. C. Geiger, M. D., Dr. P. H., Sc. D., LL. D. Medical Jurisprudence and Toxicology by William Dr. McNally, A. B., M. D. A Textbook of Clinical Neurology by Israel S. Wechsler, M. D. A Textbook of Surgery by American Authors, edited by Frederick Christopher, B. S., M. D., F. A. C. S.

Charles C. Thomas, Springfield and Baltimore: Rural Medicine: Proceedings of the Conference held at Cooperstown, New York, October 7 and 8, 1938.



# New Orleans Medical

and

## Surgical Journal

Vol. 92

AUGUST, 1939

No. 2

### THE UNIFICATION OF THE MEDICAL PROFESSION FOR THE PROTEC- TION OF THE PUBLIC\*

LEON J. MENVILLE, M. D.

NEW ORLEANS

After being accorded the honor and pleasure of addressing you, the graduating class of Tulane Medical School, I naturally endeavored to select a topic, the scope of which may prove appropriate and of service at this present and most important era of medicine.

The early history of our profession reveals an evolution of endeavor, while primarily humane in its intent, was most inadequate and at times required stoicism on the part of the person under treatment. Time does not permit, nor is it pertinent to our theme to consider in detail the diligent, arduous and self-sacrificing, trail-blazing progress of our profession. However, some brief allusion to its background seems in order.

It has taken many centuries, much labor, and great sacrifice to erect the structure of the art and science of medical practice on the firm foundation upon which it now rests. During this construction period, untiring efforts were made, and, at times, life itself sacrificed in order that those who would follow in its practice would have sounder and more efficient means of aiding their fellowmen who were afflicted with disease. The efforts of the medical profession in this regard were appreciated by the people, and, for this reason, over centuries,

the profession was unmolested in directing its scientific, social, and clinical activities. The physician of those days was understood, his motives unquestioned; he had gained public confidence. He occupied a position of trust with a humane understanding of the need of the people. He was both satisfied and happy with the position he occupied, and his fellowmen admired and loved him for the good he practiced. He never anticipated or expected that the situation might some day change, as indeed it has; that he should be looked upon as a member of a monopoly or trust calculated to "filch" money from his fellowmen or to exact "the pound of flesh." There are members of the profession who, even at this time, fail to appreciate the change which has taken place, if not in, at least, before the "public eye." Dr. R. C. Rontley, General Secretary of the Canadian Medical Society, recently said: "Indeed, many doctors will neither admit nor recognize that changes are taking place in the public mind. Such doctors, however, are like the foolish virgins: 'Their lamps are without oil. Good and true servants though they be, they are proceeding blindly and, if left to flounder by themselves, will be wrecked on the reefs of change which they can not or will not see.'"

At this time, let us proclaim that we feel the public at large still possesses a deep and sincere confidence in our profession, and the change has been due to governmental propaganda and socialization trend, and, to some little extent, corporation needs. The latter are usually reasonable and well intended; the former is a desire for power and bureaucracy and should not be tolerated.

\*Delivered at the Ivy Day Exercises of the Tulane Medical School on June 5, 1939.

The medical profession has always devoted its time and effort toward the scientific phases of medicine for the purpose of human benefit and with but very little thought as to its economic phases. There have been within and without our ranks some who have stirred up agitations in some quarters against the present status of the practice of medicine. It would seem, however, that the greatest offenders are those who are trying to busy themselves with a problem about which they know very little, but they should keep in mind that the stakes with which they are playing are human lives. Now that the economic phases of medicine have been thrust upon us, we must deal with them, however distasteful and unpleasant the task.

The ramifications of the economic phases of medicine are so numerous that I shall have time only briefly to discuss a few of the more salient problems. The main problem, of course, confronting us and glaring as a horrid monster before you, who are about to enter into the practice of medicine, is so-called "socialized medicine" as exploited by certain of our governmental representatives.

What do we mean by "socialized medicine"? Briefly, according to J. Weslon Walsh: "Anything is socialized which is supported by people as groups, rather than as individuals. A public library is a socialized institution because it is supported by taxpayers. Medicine may be socialized in the same way. We have socialized medicine when the government supports tuberculosis hospitals and free medical care for the indigent through taxation. We also have a variety of socialization when people join insurance associations under which the members of a group aid in paying the medical expenses of the sick of the same group".

The objective in promoting socialized medicine is to give adequate medical care to all the people of this country. Organized medicine is in perfect agreement with this, but it objects to both the politicalization and domination of the practice of medicine by a governmental bureau and the deprivation of the sick individual of his choice of physi-

cian. Let's take for example Group Health Association: Group Health Association has been defined as a group of persons who form a corporation and hire several doctors on a salary basis to provide continual medical needs. Individuals in the group pay a fixed sum per month. It is obvious that the members of the group have to take the doctor whom their officer selects for them. In addition, such practice is a corporation practice of medicine and, in many states, it is held as a violation of the medical practice act. Quite naturally the medical profession is opposed to such an association, because it lowers the quality of medical care given. As it was recently so well stated by Dr. Irvin Abell, President of the American Medical Association: "It is a fundamental tenet of the American Medical Association that it is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient because to do so is detrimental to the public."

In an effort to protect the public against inferior medical service rendered by some physicians who think more of their jobs than of skillfully administering medical aid, organized medicine in certain instances has dismissed from its ranks physicians making such contracts, because they feel that good medical care can not be given the public under such circumstances. This disciplinary measure for the public good occasioned these medical societies and the largest and greatest medical organization in the world to be indicted by a Federal Grand Jury.

Compulsory Health Insurance is another offspring of socialized medicine of which the American Medical Association disapproves. It has been defined as a form of socialized medicine under which the individual is compelled to pay in advance a stipulated sum of money to guarantee payment of the costs of medical and hospital care in the event of illness. Deductions are made by law from the pay envelopes of the workman. The employer also is forced to contribute to these advance payments, and the state pays a portion of the expense. Since the state collects the funds and main-

tains close supervision of the medical service offered, it is obviously state medicine.

We must not confuse Compulsory Health Insurance with Voluntary Health Insurance. There has been considerable misunderstanding in this regard, so much so, that a newspaper syndicate released a survey which disclosed that 73 per cent of the physicians in this country favored voluntary health insurance. It must be said that in this release, the statistics just given were alluded to only as health insurance without stating whether it was of voluntary or compulsory form. As a result, many newspapers and magazines presented editorials stating that a majority of the physicians of this country were not in agreement with the policies of the American Medical Association in opposing Compulsory Health Insurance. No doubt, many who read these erroneous reports concluded that there existed a friction within the ranks of this great organization, when, in reality, such was not the case.

One can not dismiss the subject of medical economics without discussing briefly the need of relief for those applying for medical care. Can we help these people in making it easier for them to procure medical care? We sometimes wonder whether those needing such care have availed themselves of the many advantages offered by the medical profession in this regard. A year ago the New Jersey State Medical Society issued an invitation to any one within that state who was in need of medical care and unable to obtain it to apply to the executive offices of their society. One hundred and twenty-seven requests were made out of a population of four million. A study of this small number disclosed the fact that they were not being deprived of medical care, but that they did not know how to proceed to procure it. We should also remember in this regard that experience teaches us that a certain number of those who do not receive medical care for disability illnesses apparently attend to their other wants of lesser importance, or perhaps do not desire such care. On the other hand, there are some who are unable to pay for medical care, and

others who maintain that the cost is prohibitive. In the instances of those unable to pay, the medical profession has always cheerfully rendered to these worthy people their service gratuitously. It is a matter of fact that every physician, every medical association, including the American Medical Association, is in favor of helping the low income group pay their own bills, and not tax others to do it for them. In the instance of those who maintain that medical bills are prohibitive, it might be said that their grievance is that they receive any bill, and not because it is medical. If those who complain would reflect for a moment, they would find that the bills which they receive for medical care are small compared to many others often of lesser importance. It is said that the largest American bill is the tax bill. This year, the American people will spend thirteen billion dollars for taxes, and only eleven billion dollars for food. It should be remembered that the poor who are unable to pay for medical care are made to pay to the government indirectly through the price of food, clothing, and rents, which contribute to this, the largest of American bills, the tax bill. As an example, it is said that there are now fifty-two taxes on a loaf of bread before it reaches our table. To levy any additional taxes on the people, which, as we have already shown, include the poor, would indeed be a burden. Our present taxes use up 24 per cent of the national income, certainly any extra taxes would seriously augment the already greatly disturbed status of our national economic condition.

I have made an attempt to explain briefly the attitude of the medical profession regarding the danger which might result if the government, through socialized medicine, directs the activities of the medical profession.

The medical profession is not opposing compulsory health insurance merely to protect its own interest, it is fighting to keep politicians from controlling the practice of medicine to the detriment of the health of the American people. Naturally, this does not mean that the profession in any man-

ner fails to appreciate the great value of such a system as that rendered by the American Public Health System, which has accomplished and still accomplishes the greatest of protection and good for the American public. This system is rightfully not controlled by state governments, whereas socialized medicine would of necessity result in state medicine, state domination, and dictation, and, in reality, become a transgression of the personal liberty of a sovereign people. Organized medicine is only working, as their heritage has proved, for the good and health of the people and not for professional aggrandizement or trust monopoly. The high standards and accomplishments of our profession challenge and blanket the gross insults and scandals that have been thrust at us. It is endeavoring solely to prevent politicians and capitalists from being wedged between the doctor and the patient.

In order to protect the health and the well-being of the American public, the medical profession must unite solidly. In this, we expect your help.

You have been most fortunate in having received a liberal and thorough medical education from one of the oldest medical schools of the country, and it is you, the recent graduate, who is expected to perpetuate its good name and reputation. You can best do this by applying in a practical manner the idealistic principles of the practice of medicine with which you have been imbued.

Soon, you will be licensed legally to enter the practice of medicine, and, from then on, the responsibility for carrying on the precepts of organized medicine will impel you to become a member of your local, state, and national medical societies. You will find that the aim and purpose of medical organization is not for personal protection, (except where unfairly treated) but for the maintenance of ethical and technical standards and to protect the public against quackery and isms. It should be remembered that the medical profession is bound to a code of ethics which requires that the interest of the patient is of first consideration. Your

oath of Hippocrates emulates and identifies the true and honorable doctor of medicine.

If all legally qualified medical practitioners of this country belonged to the American Medical Association, abiding by its ideals and principles, and mostly do, such as they should, our organization would be a power in controlling the practice of medicine for the people, with the people, and by the people. But instead of all its members cooperating in this regard, we find that some of its present members speak publicly out of turn, expressing views contrary to the principles of this organization, views based not upon practical medicine, but on theoretical and fancied grounds.

The enemies of organized medicine are always in readiness to publicize such arguments with the comment that organized medicine is crumbling to pieces. If we unify the profession in abiding by the principles and dictates of our carefully regulated and governed American Medical Association, we can rest assured that the health of the public will be maintained.

It is to be hoped that this important and difficult discussion will be properly and justly settled before you enter into the practice of medicine. We, who are now in the midst of this controversy, feel that the public at large, who respect and honor the physician, will, for their own good, resent any intrusions which will interfere with adequate and skillful administration of medical care to those in need of such service.

Should you, however, be confronted with this problem, be comforted with the thought that the medical profession, although not politically organized, is unified in an intense desire to prevent any intrusion which might interfere with the health of our people. In this regard, you will find in the often quoted beautiful stanzas of Longfellow, an inspiration which will help you to uphold the finest traditions of the medical profession.

"In the world's broad field of battle,  
In the bivouac of Life,  
Be not like dumb driven cattle!  
Be a hero in the strife!



“Let us, then, be up and doing,  
 With a heart for any fate;  
 Still achieving, still pursuing;  
 Learn to labor and to wait.”

---

### THE PRESENT CONCEPT OF CANCER\*

JAMES T. NIX, M. D.†

NEW ORLEANS

In the past, fighting cancer has been, from the time of Hippocrates, the prerogative and work of the medical profession. Today, however, the public forces of America have joined in the crusade and there have been developed powerful agents rendering invaluable assistance, especially the American Society for the Control of Cancer and the Women's Field Army. These organizations have disseminated staggering statistics, presenting knowledge that should be common knowledge for all. Cancer is nearly always curable with early recognition. In America, one person out of every ten, or 400 persons die every day, from cancer. Seventy per cent of these are curable in the early stages. Because of the appalling number of preventable deaths, Congress and the President of the United States have set aside April of each year as “Cancer Control Month.”

Cancer has been called the “dire disease” (Semon), and in the United States it still levies a yearly toll of 135,000 lives. There are 500,000 persons afflicted with cancer at all times in America alone! (Francis Carter Wood). It is Public Enemy No. 2 among the killers of men, exceeded only by heart disease. Cancer stalks our lives with death at every turn, at every age. There results the most disgraceful form of human sacrifice; more tragic when we consider that this figure could be reduced to one-third if we availed ourselves of all accessible information. Cancer is not “the great dark-

ness,”—not “an unfathomable mystery” before whose stealthy ravages we must stand helpless. On the contrary, our battle cry, “Fight Cancer with Knowledge,” has a triumphant ring of truth.

The nature of cancer is known—it is, in fact, of very ancient origin. Analogous to the gangsters among people of the earth, the cells of cancer represent a form of bolshevism, gangster cells—anarchists, communists, a rebellion against constituted authority. Health and normal growth are the result of coordination of functions and development of every organ and tissue in the body, in accordance with well recognized principles. In cancer a small group of cells ignore law and order, rebel against the performance of their usual functions, cross sacred barriers, multiply rapidly, growing like parasites at the expense of law-abiding cells, spreading everywhere, disrupting cell harmony and sapping the general vitality to such an extent that cell life ends and the afflicted person dies. Cancer is a lethal disease, always ending in death if not eradicated or controlled.

In relation to the normal healthy body cell, the cancer cell is treason! It is sabotage! As there are many forms of betrayal, so are there many types of cancer, depending on the site of origin of the rebellious cells. Some cancers are more malevolent, or as we say, more malignant than others, wreak their havoc and kill more quickly. Some occur in children, even at birth; the majority, however, in grown people, after the age of forty.

Just why cells multiply so illogically, we do not know. We do know, however, that no germs are directly responsible for it, therefore cancer is not contagious. Neither is cancer inherited in the common types of the disease. Fortunately, parents do not transmit the scourge to the children. Although what we eat affects our health, our sinews, and even our disposition, cancer has no relation to diet.

It is as numerous and varied as the plants and flowers of the garden and field. It is to be found in all forms of life, in the fish in the sea, in the birds in the air, in the

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society in Alexandria, April 24, 1939.

†From the Department of Surgery, Graduate School of Medicine, Louisiana State University Medical Center, New Orleans.

animals of the earth. Many of our greatest and most important studies have resulted from experimentation with cancer in the lower forms of life.

Constant irritation will contribute to the development of a tumor. "Our follies and errors create more grief than our wits can endure," and in consequence, a jagged tooth constantly rubbing against the tongue eventually may create a cancer at the site of injury. The same may happen to a scar chronically irritated by clothes, or to a face mole frequently cut by the razor. Many cancers are preventable if we properly respect the tolerance of our tissues to constant insult, and make every effort to secure and maintain the highest peak of health.

The greatest folly is personal negligence, delay in having seemingly minor ailments and discomforts attended and relieved. Cancer never develops in normal healthy tissue. There is always present some irritation, inflammation or dysfunction. "Eternal vigilance is the price of safety." No discomfort is too trivial to be ignored. In early cancer the chances of getting well are three out of four or better than 75 per cent; even in moderately advanced stages, one out of five, or 20 per cent; in advanced stages, one out of 20, 5 per cent or less. That is why it is so important to detect cancer in its beginning. The Spanish have an aphorism: "Diagnostica precoz—cura cierta. Early diagnosis—certain cure." If you see a doctor in the early stages, you are almost certain to get well. If you wait till you are really ill, he will be considerably handicapped. Let me repeat the admonition of Lord Moynihan in cancer of the breast and many other cancers, "The certainty of diagnosis is the certainty of death." The diagnosis should be made on the first suspicion of the presence of cancer.

Two simple rules faithfully observed will make your chances of being seriously ill with cancer almost negligible: First, have a complete physical examination at least once a year; second, see your doctor whenever any vague discomfort persists more than two weeks. By vague discomfort is meant

unaccountable indigestion, fullness or burning in the stomach, difficulty in swallowing, change in bowel habits, cough, bleeding of any sort, lumps, and sores. Do not ever wait for pain; a painless lump may be a serious matter. Pain is a symptom of advanced cancer except when it attacks bone. Do not be lulled into false security because you are not losing weight and are able to do your work. To cure cancer it must be recognized when you are otherwise perfectly well and when no inroads into health have been made. When the cancer is early, it will give very little discomfort, so delay is the costliest error possible. Do not be a stoic, hide your symptoms—bear your pain—cover up—for "Stoicism in cancer is fatal." If attention is given to minor complaints, in the majority of cases the cure will be simple. "It is better to be safe than sorry." Apply to yourself the sage advice of the manufacturer of paints, "Save the surface and you save all." Attend to your minor ailments and you will have no serious ones.

That even advanced cancer is curable is proved by the files of the American College of Surgeons, where cures of 29,000 cases have been collected. Surgery, x-rays and radium, singly or together, have wrought this great accomplishment.

Medicine is not a game of solitaire. You must have teamwork — a pooling of all scientific knowledge, especially that of the internist, surgeon, pathologist, and radiologist. The methods are constantly improved. What was considered effectual ten years ago in many instances is obsolete today.

Do not guess. Do not take a chance on life. A guess is a poor peg on which to hang a life. Accuracy of diagnosis is vital. If in doubt, take a small bit of tissue, the size of the head of a pin, and examine it under the microscope. This is what is called a biopsy. Biopsies can and should be secured in nearly all cases of cancer. A biopsy not only makes positive the diagnosis, but it designates severity, the type of the lesion and often outlines the plan of treatment.

On the first appearance of unusual symptoms, see your doctor promptly, secure a scientific examination and accurate diag-

nosis, otherwise the wealth of knowledge old and new, the advances so painfully wrested through sacrifice and zealous work will go for naught. Fight cancer with knowledge! Give yourself every chance!

Untreated and uncontrolled cancer is certain death. The dangerous allies are ignorance and neglect. Wanton neglect and blind ignorance are inexcusable. They are cheats and robbers that forfeit your health and steal your life.

*Remember these ten commandments:*

1. Cancer is a lethal disease, a merciless killer. Failure to recognize or properly treat it has but one ending—death.

2. Cancer never develops in perfectly healthy tissue and usually sends some advance notice of its presence; you are forewarned.

3. Cancer is not hereditary.

4. Cancer is not contagious.

5. Cancer cells are embryonal cells, baby cells. The healthy, normal cell is the adult. As the child will succumb to adverse conditions which do not affect the adult, so the cancer or baby cell can be killed by an agent, x-ray or radium, in doses which do not affect the adult cell.

6. Guaranteed sure cures are always fakes. There is nothing known or used by charlatans and quacks that the honored profession has not carefully investigated and does not thoroughly understand.

7. The only weapons we have to fight cancer are x-ray, radium, and surgery, independently or combined.

8. Pain seldom initiates cancer and usually appears late in the disease.

9. Periodic health examinations and alertness in having investigated any unusual symptom represent our most effective insurance.

10. Vigilance is the keyword; vigilance is insurance. Be "G men" in securing a quick dispatch of detection and treatment. Early cancer is curable. Procrastination is a thief of life. Fight cancer with knowledge.

## METRAZOL THERAPY IN PSYCHOTIC EXCITEMENTS\*

ERNEST N. CARMOUCHE, M. D.

S. J. PHILLIPS, M. D.

PINEVILLE, LA.

and

DEAN H. DUNCAN, M. D.

SHREVEPORT

Since Meduna,<sup>1</sup> in 1934, published his first results in the treatment of schizophrenic disorders by producing convulsive seizures, this method of treatment has been extended to other so-called functional mental diseases. Its use in depressive psychoses has been reported by Bennett,<sup>2</sup> and by Young.<sup>3</sup> Its use in the treatment of chronic psychotic over-activity as reported by Cohen<sup>4</sup> stimulated our interest in the present series of cases.

Twenty cases were selected on the basis of the degree of excitement present, all being resident of disturbed wards and chosen because they were considered the most constantly disturbed cases. Cases presenting physical disorders contraindicating metrazol therapy were, of course, excluded. All the cases were classified as dementia precox except two, one of these being a manic excitement, the other, psychosis with mental deficiency. The duration of psychosis in these cases ranged from two months to twelve years. The manic episode was of two months' duration at the time treatment was started, this being the second episode of excitement experienced by this patient, and it was a rather open question as to how complete recovery had been previously, as the patient's general conduct indicated a definite tendency to hypomanic state. It is quite probable that the psychosis in many of these cases extended over considerably longer periods of time than indicated, as in many cases it is impossible to determine accurately from information furnished the exact date of the onset of symptoms.

\*Read before the sixtieth annual meeting of the Louisiana Medical Society at Alexandria, April 25, 1939.

Metrazol was administered in the usual way, that is, the so-called speed injection of 10 per cent solution of the drug was given intravenously, usually on alternate days unless it was necessary to interrupt dosages because of the various factors occurring in the patient's condition. Three cubic centimeters were used at the initial dose and the dose increased  $\frac{1}{2}$  c.c. each dose until convulsive dose was attained. In most of the cases, the dosage was increased  $\frac{1}{4}$  c.c. at each treatment after convulsions were obtained. Treatment was carried on until it was thought that the patient had reached a peak of improvement. It was necessary occasionally to interrupt treatment and to reinstitute metrazol as occasion demanded, or as recurrence of symptoms in some of the cases meant that return to treatment seemed advisable. The number of doses given ranged from eight to twenty-four injections. The number of major convulsive seizures ranged from three to twenty. The minimum convulsive dose was 3 c.c., the maximum 12 c.c. No complications of treatment were encountered except in the case of M. W., aged 21, dementia precox, catatonic type, who had, following the fourth major convulsion, a status epilepticus, this being controlled with some difficulty by sodium amytal.

#### ACTION OF THE DRUG

Although the mode of action of this type of shock therapy is incompletely understood at present, it is our belief that both physiologic and psychologic factors are involved. The metabolism of the brain is concerned primarily with the oxidation of dextrose. Following the administration of a convulsive dose of metrazol, there is apparently an acute temporary inhibition of metabolism due to a temporary deprivation of available oxygen, this apparently being followed by secondary direct or indirect increase in oxidation.<sup>5</sup> In discussion of the psychology of metrazol treatment, Schilder<sup>6</sup> expressed the belief that during metrazol treatment the patient experiences a fear of death and that following coma he experiences a slow revival of interest accompanied by a feeling of relief and that in comparison with this experience, other experiences lose

their importance and the individual's psychic energy is thus freed. Whatever the various psychologic factors involved may be, and they are perhaps many, it is our impression that those patients who receive increased attention and even very moderate amounts of psychotherapy, make better improvement than do those who receive no psychotherapy. While this method of treatment is, in our opinion, primarily physiologic in operation, it is nevertheless true that patients derive enormous benefit from being able to discuss their problems even superficially and from the encouragement obtained from being transferred from disturbed wards to better wards and from their being in a condition which permits their working.

#### RESULT OF TREATMENT

As to results of treatment, we have found it practical to evaluate changes in the patient's condition in the following way: First, certain cases are listed as "Paroled," these patients having come before the staff and having been found to be in a condition suitable for attempt at adjustment outside the institution. This does not necessarily mean that these patients were entirely recovered in that parole does not necessitate complete insight, but they may be safely considered as relatively symptom-free. In the second group, which was designated as "Improved and Working," we include those patients who have improved to the extent of being able to do work about the institution. In the third group, "Improved but Not Working," are included those cases in which there is a marked decrease in excitement, the patient's general level of behavior being much improved but in whom improvement sufficient to permit the patient to do useful work in the institution had not occurred. As "Unimproved," are listed those cases in which no change in the degree of excitement present was apparent. In the first group, "Paroled," at the date of this report, are included eight cases. In the second group, that is, "Improved and Working," but still in the institution, are seven cases. In the third group, "Improved but Not Working," are three cases. In the last

group, "Unimproved" and apparently unchanged by treatment, are two cases. Five cases included in the second group, that is, markedly improved, or improved and working, are eligible for parole within one month provided they continue to be relatively symptom-free. Though the results of treatment in this group are so far rather encouraging, we are aware of the fact that the period of observation of these cases is too short for definite conclusions to be reached as to the permanence of the improvement so far obtained. We believe that it is quite probable that a return to treatment may be necessary from time to time.

#### CASE ABSTRACTS

The following case abstracts describe briefly the symptoms present, the treatment given and the changes occurring in the individual cases:

Case 1. E. J., aged 25. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Two years. Condition at beginning of metrazol therapy November 19, 1938: Markedly excited, combative, destructive, overly talkative, markedly delusional, kept in constant restraint during the last two months. Total number of injections, 14. Grand mal nine, petit mal two, no effect three. Dosage: Minimum dose to produce seizure 5 c.c., maximum dose 9-3/4 c.c. Condition at conclusion of metrazol therapy December 19, 1938: Good remission, assigned to duties in the diet kitchen. Paroled January 20, 1939.

Case 2. B. B. B., aged 25. Diagnosis: Manic depressive psychosis, manic type, with paranoid trends. Duration of psychosis: Two months. Condition at beginning of metrazol therapy November 28, 1938: Elated, overly talkative, egotistical, antagonistic, paranoid trends. Total number of injections, ten. Grand mal three, petit mal seven. Dosage: Minimum dose to produce seizures 9 c. c., maximum dose 10 c.c. Condition at conclusion of metrazol therapy December 16, 1938: Quiet, orderly, cooperative, absence of psychotic symptoms. Paroled December 18, 1938.

Case 3. D. G., aged 34. Diagnosis: Dementia precox, undifferentiated type. Duration of psychosis: Nine months. Condition at beginning of metrazol therapy November 4, 1938: Noisy, excited, combative and untidy. Total number of injections, eight. Grand mal six, petit mal two. Dosage: Minimum dose to produce seizure 3 c.c., maximum dose 7 c.c. Condition at conclusion of metrazol therapy November 21, 1938: Patient was quiet, orderly, cooperative, apparently free of symptoms. Patient was paroled December 19, 1938.

Case 4. F. B., aged 23. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Eight years. Condition at beginning of metrazol therapy November 10, 1938: Markedly excited, combative, destructive, in restraint almost constantly. Total number of injections, ten. Grand mal seven, petit mal one, no effect two. Dosage: Minimum dose to produce seizure 5 c.c., maximum dose 8 c.c. Condition at conclusion of metrazol therapy December 12, 1938: Quiet, orderly, cooperative, tendency to under-activity. After the seventh injection, patient became stuporous and continued so for fourteen days. Treatment was resumed with marked improvement. One week later she was assigned to work as a maid in the institution. Her work continued to be satisfactory and she was apparently symptom-free. Paroled January 20, 1939.

Case 5. L. B. A., aged 29. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Two years. Condition at beginning of metrazol therapy November 10, 1938: Combative, destructive, excited, impulsive, kept in constant restraint. Total number of injections, 12. Grand mal six, petit mal six. Dosage: Minimum dose to produce seizure 7 c.c., maximum dose 11-1/4 c.c. Condition at conclusion of metrazol therapy December 7, 1938: Quiet, orderly, cooperative and free from psychotic symptoms. Remarks: November 23, 1938, patient was taken out of room confinement; on November 29, 1938, no restraint whatsoever, and light work was assigned to patient on the ward. December 8, 1938, patient's behavior was entirely normal, she had good insight, stated that she no longer heard voices. Her work was entirely satisfactory. On January 20, 1939 she was paroled symptom-free.

Case 6. M. W., aged 21. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Six months. Condition at beginning of metrazol therapy November 12, 1938: Overly talkative, confused, uncooperative, moderately excited, destructive at times. Total number of injections, 16. Grand mal 12, petit mal two, no effect two. Dosage: Minimum dose to produce seizure 3 c.c., maximum dose 9 c.c. Condition at conclusion of metrazol therapy December 21, 1938: Patient much improved, quiet and cooperative but still appeared to hallucinate at times and slightly confused, working in hydrotherapy department. Remarks: On November 23, 1938, injection was given and after about three minutes the patient had a violent delayed convulsion. The three-minute latent period was characterized by extreme excitement. Following the convulsion she went into status epilepticus, was transferred to the hospital, being given sodium amylal intravenously, and stimuli as needed. Again on December 9, 1938, about twenty minutes after injection, patient had another convulsion. She did not in this instance remain in status. On

December 23, 1938, after treatment was discontinued, she was sent back to work in the hydrotherapy room and appeared to have made satisfactory institutional adjustment. She was paroled on February 14, 1938.

Case 7. M. E., aged 22. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Two years. Condition at beginning of metrazol November 10, 1938: Excited, hallucinatory, impulsive, overly talkative but not combative. Total number of injections, 14. Grand mal seven, petit mal six, no effect one. Dosage: Minimum dose to produce seizure 4 c.c., maximum dose 12 c. c. Condition at conclusion of metrazol therapy January 20, 1939: Slight improvement, still hallucinated, but able to do some work on the ward.

Case 8. L. D., aged 27. Diagnosis: Psychosis with mental deficiency. Duration of psychosis: Undetermined. Condition at beginning of metrazol therapy November 23, 1938: Periodic episodes of marked excitement, during which she was combative, destructive, had to be restrained, and manifested symptoms of hysteria. Total number of injections, eight. Grand mal eight. Dosage: Minimum dose to produce seizure 3 c.c., maximum dose 5-1/4 c.c. Condition at conclusion of metrazol therapy December 16, 1938: Patient was temporarily improved, able to work as a waitress for a short period of time. However, her condition was noted on February 14, 1939 as showing unimprovement as all her symptoms had recurred and her condition was essentially the same as before treatment was instituted.

Case 9. S. M., aged 29. Diagnosis: Dementia precox, hebephrenic type. Duration of psychosis: Three years. Condition at beginning of metrazol therapy November 10, 1938: Impulsive, hallucinatory, combative and excited. Total number of injections, 13. Dosage: Minimum dose to produce seizure 3 c.c., maximum dose 8 c.c. Condition at conclusion of metrazol therapy December 12, 1938: Very slight improvement. Patient was still living on disturbed ward but slightly less impulsive and no longer combative. On February 14, 1939 there was slight improvement.

Case 10. B. H., aged 22. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Five years and eight months: Condition at beginning of metrazol therapy November 23, 1938; excited, frequently hallucinating, flight of ideas, talked excessively and rapidly, emotionally unstable. Total number of injections, 13. Grand mal eight, petit mal five. Dosage: Minimum to produce seizure 3 c.c., maximum dose 8-1/4 c.c. Condition at conclusion of metrazol therapy December 30, 1938: Patient showed little improvement, though she was less noisy and able to do some light work on the ward. On February 14, 1939, patient was still hallucinating and over-

talkative but somewhat improved and working on the ward.

Case 11. R. G., aged 21. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Three years. Condition at beginning of metrazol therapy on November 19, 1938: Noisy, excited, impulsive, and hallucinating. Total number of injections ten. Grand mal seven, petit mal one, no effect two. Dosage: Minimum dose to produce seizure 5 c.c., maximum dose 8-3/4 c.c. Condition at conclusion of metrazol therapy on December 7, 1938: Patient showed slight improvement. She was no longer destructive, assisted in some ward work, still hallucinated at times.

Case 12. J. S., aged 24. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Seven months. Condition at beginning of metrazol therapy on December 5, 1938: Extremely noisy, excited, hallucinated, in continuous restraint, tube-fed. Total number of injections, 24. Grand mal 20, petit mal four. Dosage: Minimum dose to produce seizure 4 c.c., maximum dose 9-1/2 c.c. Condition at conclusion of metrazol therapy December 23, 1938: Patient was relatively symptom-free and assigned to work in the staff kitchen. She was to be paroled after one month if she continued to be symptom-free. A short period of excitement recurred three days later and treatment was resumed December 28, 1938. She again became excited on January 9, 1939. Treatment was continued and on January 20, 1939, patient was again definitely improved and working.

Case 13. O. T., aged 21. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Four months. Condition at beginning of metrazol therapy on December 12, 1938: Excited, hallucinated, impulsive, noisy, in restraint frequently. Total number of injections, nine. Grand mal eight, petit mal one. Dosage: Minimum dose to produce seizure 3 c.c., maximum dose 6-3/4 c.c. Condition at conclusion of metrazol therapy January 2, 1939: Remission of symptoms. Paroled.

Case 14. F. B., aged 19. Diagnosis: Dementia precox, undifferentiated type. Duration of psychosis: Three and a half years. Condition at beginning of metrazol therapy November 10, 1938: Hallucinated, noisy and impulsive. Total number of injections, 15. Grand mal 12, petit mal 0, no effect three. Dosage: Minimum dose to produce seizure 4 c.c. Condition at conclusion of metrazol therapy January 9, 1939: Treatment was discontinued due to the elevation of temperature which was found to be the result of tuberculosis. Metrazol therapy is believed to have caused a flare-up of an unrecognized pulmonary lesion. Mentally patient was much improved.

Case 15. A. S., aged 21. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Twelve months. Condition at beginning of met-

metrazol on November 10, 1938: Noisy, hallucinated, combative and destructive at times, restrained frequently. Total number of injections, 22. Grand mal 19, petit mal two, no effect one. Dosage: Minimum dose to produce seizure 3 c.c., maximum dose 9-1/2 c.c. Condition at conclusion of metrazol therapy January 13, 1939: Catatonic stupor. On November 25, 1938 patient was relatively free of symptoms and had been assigned to work in the diet kitchen. On December 12, 1938 she suddenly became markedly excited and treatment was resumed with no apparent effect except that it seemed to produce a reversal of reaction, patient becoming stuporous. Results: No improvement.

Case 16. M. J., aged 22. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Four months. Condition at beginning of metrazol therapy December 16, 1938: Excited, hallucinated, impulsive, combative, continuous restraint. Total number of injections, 15. Grand mal eight, petit mal four, no effect three. Dosage: Minimum dose to produce seizure 4-1/2 c.c., maximum dose 9-1/2 c.c. Condition at conclusion of metrazol therapy January 20, 1939. Patient was quiet, cooperative, working on the ward, making good institutional adjustment, marked improvement.

Case 17. L. L., aged 19. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Initial attack three years and two months; present attack one month. Condition at beginning of metrazol therapy January 2, 1939: Extremely excited, combative, hallucinated and continuous restraint. Total number of injections, 14. Grand mal six, petit mal four, no effect four. Dosage: Minimum dose to produce seizure 4 c.c., maximum dose 8-1/2 c.c. Condition at conclusion of metrazol therapy February 10, 1939: Patient was quiet, cooperative, assisted in the work on the ward. Markedly improved.

Case 18. M. M. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: One year and four months. Condition at beginning of metrazol therapy January 11, 1939: Noisy, hallucinated, combative, restrained in cuffs. Total number of injections, ten. Grand mal six, petit mal one, no effect three. Dosage: Minimum dose to produce seizure 6 c.c., maximum dose 8-1/2 c.c. Condition at conclusion of metrazol therapy February 13, 1939: Quiet, cooperative, helping with the work on the ward, interested in the surroundings.

Case 19. K. M., aged 22. Diagnosis: Dementia precox, catatonic type. Duration of psychosis: Three months. Condition at beginning of metrazol therapy January 9, 1939. Noisy, hallucinated, combative, destructive, continuous restraint. Total number of injections, 14. Grand mal 12, petit mal one, no effect one. Dosage: Minimum dose to produce seizure 4 c.c., maximum dose 7-1/2 c.c. Condition at conclusion of metrazol therapy Feb-

ruary 13, 1939: Free of psychotic symptoms except for slight over-activity, working on the ward, quiet and cooperative.

Case 20. M. J., aged 37. Diagnosis: Dementia precox, undifferentiated type. Duration of psychosis: Initial attack twelve years, present attack four months. Condition at beginning of metrazol December 31, 1938: Noisy, hallucinated, destructive, untidy, frequent restraint. Had received insulin therapy with little or no improvement. Total number of injections, seven. Grand mal three, petit mal two, no effect two. Dosage: Minimum dose to produce seizure 3 c.c., maximum dose 6-1/2 c.c. Condition at conclusion of metrazol therapy January 11, 1939: Patient was quiet, cooperative, working in the diet kitchen, apparently symptom-free. Paroled January 22, 1939.

#### CONCLUSIONS

Twenty patients with psychotic over-activity, including one manic-depressive, one psychosis with mental deficiency and eighteen patients with schizophrenic excitement were subjected to metrazol therapy. The results to date in this group of excitements are briefly as follows: All patients show definite improvement except two. Eight were improved sufficiently to permit parole from the institution and five others at present are in a condition which makes parole within the next month probable. In those who have not so far obtained parole, seven were improved sufficiently to permit the patients to be treated outside the disturbed wards and to permit them to do a reasonable amount of work in the institution. Three patients, though unable to work, were improved to a considerable extent, in that they were controlled with much less difficulty. It is our impression that certain cases of chronic psychotic excitement respond well to metrazol therapy. Even in those cases of longer duration in which a remission of symptoms cannot be obtained, patients nevertheless show sufficient improvement so that a large number of them are able to be treated off the disturbed ward and show a marked improvement in hospital adjustment. Further observation will be necessary before it can be determined that the improvement in these cases is more than temporary.

#### REFERENCES

1. Meduna, L.: New methods of treatment of schizophrenia. *Arch. Neurol. & Psychiat.*, 35; 361, 1936.
2. Bennett, A. E.: Convulsive shock therapy in de-

pressive psychoses, *Am. J. Med. Sci.*, 196; 420, 1938.

3. Young, R. H. and Young, G. A.: Treatment of psychoses, *J. A. M. A.*, 112: 496, 1939.

4. Cohen, L. H.: Early effects of metrazol therapy in chronic psychotic over-activity, *Am. J. Psychiat.*, 95; 327, 1938.

5. Gerard, R. W.: Anoxia and neural metabolism, *Arch. Neurol. & Psychiat.*, 40; 985, 1938.

6. Schilder, Paul: Notes on the psychology of metrazol treatment of schizophrenia, *J. Nerv. & Ment. Dis.*, 89; 133, 1939.

#### DISCUSSION

Dr. S. J. Phillips (Pineville): Before proceeding with the discussion of this paper, I am going to ask Dr. Carmouche, who collaborated in this paper, to say a few words.

Dr. Ernest N. Carmouche (Pineville): I wish to make a few brief remarks concerning the attitude and experiences of patients receiving metrazol shock therapy. As you all know, most epileptics experience an aura immediately preceding the convulsion. The same is true of patients having convulsive seizures following metrazol injection. Practically all of the patients admit terrifying experiences coincidental with the injection. Many state that just before they lose consciousness they experience a feeling of impending danger and even death. Feelings of strangulation and suffocation, of rapidly falling through space, of the head entirely leaving the body, of the brain vibrating in the skull, have all been related. One patient states that visual images would crumble and disintegrate immediately prior to the seizure; another, who welcomed each injection, explained that she had the experience of taking long trips to the celestial regions and elsewhere; still another described ecstatic experiences preceding the convulsions.

All in all, shock therapy is pretty rough therapy and it is of the utmost importance to gain the full confidence of the patient and to cultivate in him or her a favorable attitude toward the treatment. Continued violent antagonism and resentment only tend to defeat the purpose of the therapy and it has been our experience that under such circumstances the treatment should be discontinued, at least temporarily.

Because of the fact that the condition of the patients in the cases reported were summarized some two months ago, I feel that it would be proper for the sake of completeness, to mention the present status of the patients and thus bring the report of cases up to date.

None of the eight patients reported as paroled have returned to the institution and from information received they have apparently made good adjustments on the outside. Of the seven patients reported as improved and working, two have since been paroled to their families free of psychotic symptoms. Three have undergone acute exacerbation of symptoms and are now listed as unimproved.

There has been no apparent change in the condition of the three cases listed as improved but not

working. Of the two patients listed as unimproved, one is now improved and working. The other is still unimproved. To recapitulate:

Total number of patients treated.....	20
Paroled .....	10
Improved and working.....	3
Improved and not working.....	3
Unimproved .....	4

Dr. S. J. Phillips (Pineville): It has been suggested that there is nothing more than violent physical and psychic shock to metrazol therapy, and attention has been called to the fact that patients in acute psychosis who may suffer some accidental trauma or acute illness may make a satisfactory mental readjustment. The therapeutic armamentarium of the psychiatrist is somewhat limited and I think we should welcome any therapeutic procedure that proves to be of value. Whether the action of metrazol is no more than a severe shock or whether it produces altered metabolism in the brain with a corresponding alteration of the mental processes or not, it does produce satisfactory remissions and recovery in psychotic patients.

I recently saw a report from one of the Mississippi state hospitals in which a large group of patients of various types of psychoses were treated with metrazol and among these were patients with involuntal melancholia. Their results were very gratifying. While the treatment of psychotic individuals with metrazol originally was apparently confined to those of the schizoid group and the depressive psychoses, the idea of treating excited psychotics with metrazol only occurred to us in the last few months. As you have noted from Dr. Duncan's paper, the results obtained in the treatment of this group of excited psychotics are very satisfactory.

Dr. C. S. Holbrook (New Orleans): The paper that has been presented calls to attention the splendid work that has been done in this state institution. Until the past few years, these patients were relegated to the disturbed wards or to the untidy wards and very little was done for them. Recently, the attitude has been decidedly better, and due to the work of Salek with insulin, and Meduna with metrazol, and various other types of therapy advanced, a lot has been accomplished in treating these patients. And the attitude of the physician has been changed from one of absolute pessimism to a feeling that something can be done to help the worst of these patients.

Dr. Duncan and his co-workers were careful not to stress the feeling that these patients were cured or that they had been changed completely in personality reaction; however, in all cases, with the exception of two or three instances, the patients were markedly improved or were satisfactorily restored to the point that they could leave the institution. That is what the therapy has done in many of these cases; it has brought about improvement



so that the patients can be moved from disturbed wards and many have been taken from the institution to the care of the family. Unquestionably, some have been restored to economic independence.

The use of metrazol in the depressive patients will, I think, definitely improve some of them. In the excited cases the use of metrazol has not been employed to any great extent, and whether or not it is indicated remains to be established. In the depressions and in melancholia the convulsions produced by metrazol definitely benefit these patients, often greatly lessening the duration of the psychotic process.

Dr. T. A. Watters (New Orleans): I would like to add a few remarks about something I saw in the Oklahoma State Hospital, at Norman. Dr. Griffith and his co-workers use metrazol treatment not only to produce remissions that will allow patients to leave the hospital and go home to their relatives, but they also use it to make life in the hospital more livable and put them in a condition where they can be helped further through occupational and recreational therapy.

I want to congratulate Dr. Phillips, as a Louisiana State Hospital Superintendent, for having encouraged such research in his institution, and thus making possible this paper. This study, particularly the follow-up work, must have taken a great deal of time and the authors are to be commended on their contribution.

Dr. Dean H. Duncan (In conclusion): There were two or three questions asked relative to metrazol therapy and I shall answer them as well as I can in the limited time permitted for the discussion. Two people have asked whether or not this type of therapy can be carried on outside an institution. As to this, opinions differ. This therapy is being given outside an institution by a few workers who believe that it can safely be used provided proper precautions are taken. However, it is not our opinion that this is a safe procedure outside a properly equipped institution, nor do we believe that the treatment should be given except by therapists well experienced in its use. We realize, of course, that it is possible for the treatment to be given in that manner, but believe that it unduly increases the hazards of treatment and minimizes satisfactory results.

Another question which has been asked is whether insulin or metrazol should be used. We think that both types of treatment must be available, as we encounter patients who improve with metrazol therapy after insulin has failed to produce satisfactory improvement, and in other cases insulin gives good results when metrazol has proved unsatisfactory. At the present time, various types of combination therapy are in use. It is not our belief at the present time that one therapy can be used exclusively in all cases.

The question of the use of metrazol in depres-

sions has also been raised. While its use in these conditions is relatively new, the results so far are definitely encouraging, satisfactory response to treatment being secured not only in depressed manic-depressives, but also in the agitated depressions of the involuntional period. We are not, however, using metrazol in depressions encountered in the organic psychoses, nor in any case in which we believe physical contraindications to the use of convulsive therapy exist.

—o—

## PNEUMOCOCCUS PNEUMONIA: TREATMENT WITH TYPE SPECIFIC SERUM\*

CLAUDE D. HEAD, JR., M. D.

NEW ORLEANS

Treatment of a pneumonia patient with type specific antipneumococcic serum demands of the attending physician an exact knowledge of the bacterial etiology of the disease. It is no longer enough to know that "this patient has bronchopneumonia" and that "that patient has lobar pneumonia"; bacteriologic differentiation is the more important point.

In certain areas of this country at least, approximately 80 per cent of the pneumonias of adults and 55 per cent of the pneumonias of children are of pneumococcic origin.<sup>1</sup> Comparatively recent work has demonstrated that instead of the three specific types of pneumococci, which were formerly recognized, there are now more than 30.<sup>2</sup> Each is distinct and specific and while the pneumococci are similar morphologically, they are different immunologically.<sup>3</sup>

The pneumococcus is a gram positive encapsulated diplococcus. The capsule is composed of a complex polysaccharide, chemically different for each of the individual types. The specificity and the virulence of the organisms are dependent upon the presence of this capsular substance.<sup>3</sup> The Rockefeller workers have shown that when the organism is deprived of its capsu-

\*Presented at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, Louisiana, April 24, 1939.

lar carbohydrate it becomes relatively avirulent for laboratory animals (mice).

Immune serums against many types of pneumococci can be prepared by repeated injection into suitable animals (horses and rabbits) of suspensions of these killed organisms. The use of the pneumococcus, thus, as an antigen stimulates the production of antibodies. These are highly specific, and when used therapeutically (as immune serum) are effective against only the homologous organisms. Thus it is apparent that the attending physician must have exact knowledge as to the bacterial etiology of a particular case if he is to use therapeutic serum effectively.

#### ETIOLOGY

Determination of the exact etiology of the pneumonias is accomplished by typing the organism found in sputum of the patient. The phenomenon to be observed is a marked swelling of the capsule of the organism when it is brought in contact with specific immune serum.<sup>4</sup> If no swelling of the capsule is observed on the first examination another fleck of sputum is mixed with a different type of diagnostic serum and the reaction again studied under the oil immersion lens. This examination is repeated using a different type of diagnostic serum for each test until the distinct and characteristic swelling is seen. The test is simple enough, but there are many sources of error.<sup>5</sup> Since so much depends on accurate bacteriologic diagnosis, it is imperative that the person making such examination be well equipped from the standpoints of both fundamental training and practical experience in the typing procedure.

Bullowa has shown that in about 75 per cent of pneumococcus pneumonias it is possible to recover the organism by direct examination (Neufeld reaction) of the sputum, and that in the presence of a classical pneumonia, the type of organism thus obtained corresponds with that obtained from blood culture or by lung puncture in 93.7 per cent of cases. He has thus shown the reliability of sputum typing.<sup>1</sup> In the infant or small child who swallows his sputum, specimens for typing may be obtained by

means of a deep pharyngeal or laryngeal swabbing.<sup>1</sup> The swab, after the patient has gagged and coughed, will frequently contain flecks of mucus sufficiently large to permit of typing, or the material may be placed in 1 or 2 c.c. of broth, incubated for two or three hours, and injected into the peritoneum of a white mouse. The peritoneal exudate will usually be sufficiently abundant at the end of four hours to furnish ample material for typing. The latter procedure delays the determination of the type for five to six hours, but should be done in all cases where sputum is not obtainable.

The blood culture is yet a third method of obtaining a bacteriologic diagnosis in cases of pneumonia. The pneumococcus invades the blood stream in about 25 per cent of cases, and the organism thus recovered may be considered the true causative factor, regardless of the type obtained by examination of the sputum.<sup>1, 6</sup> The lung puncture has been used as a means of obtaining a bacteriologic diagnosis where all other means have failed, but is an operation that carries an element of danger, and is not recommended in routine practice. It is possible in nearly all cases to obtain a type diagnosis by one or more of these methods. *No patient with pneumonia should be permitted to go without a bacteriologic diagnosis.*

Since antipneumococcus serum is highly specific in its action, only that one should be administered which corresponds to the type of organism that has been recovered from the patient.

#### ALLERGIC REACTIONS

Prior to the administration of any serum the patient should be carefully questioned as to any previous injection of serum, and allergic history concerning either himself or his family. A history of vasomotor rhinitis coming on when the individual was in the proximity of horses should warn the physician that horse serum given to this patient might produce alarming or even fatal reactions. A history of a previous injection of serum such as immunizing diphtheria toxin-antitoxin, or tetanus antitoxin should be the signal for proceeding with caution.<sup>7</sup> In addition to the careful questioning, every patient should be tested for

sensitivity to serum both by the intradermal and by the ophthalmic test. These tests which are simple, easily performed, and are applicable both to horse and to rabbit serum, should never be omitted. The skin test is done by injecting intradermally 0.1 c.c. of serum diluted 1:100 with sterile physiologic saline solution. A positive test is indicated by the appearance within about 15 minutes of a wheal, occasionally with pseudopodia, and an erythematous zone at the point of injection. For the eye test, one drop of 1:10 dilution of serum is placed in the conjunctival sac, reserving the opposite side for the control. A positive test is indicated by an intense conjunctivitis, appearing in 15 to 20 minutes, with itching, and lacrimation.

A positive skin or eye test is an indication that the patient may be dangerously sensitive to that particular animal's serum.<sup>7</sup> In such a case it is advisable to test the patient with serum from another species of animal used in the production of antibodies. If an individual is sensitive to horse serum, it does not necessarily follow that he will also be sensitive to that from the rabbit.

As an additional precaution, when using rabbit serum, some authorities recommend the "blood pressure depression" test.<sup>8</sup> This consists of a slow careful intravenous injection of 0.05 c.c. of rabbit serum diluted to 5.00 c.c. with sterile physiologic saline solution. The blood pressure and pulse rate are checked and recorded immediately before the test, and at intervals of one or two minutes thereafter for six to eight minutes. If the blood pressure has not dropped more than 20 mm. of mercury and if the pulse rate has not risen more than 20 beats per minute in this length of time one may with reasonable safety proceed with the first therapeutic dose.

#### TECHNICAL FEATURES

It is difficult to state the exact number of units of serum which any given patient will require for recovery. Experience has shown, however, that the average uncomplicated case, where treatment is started not later than the third day of the disease, will demand a minimum of 100,000 units. An exception to this general rule may be made

in type II pneumonia for which 200,000 units should be given as the minimum.<sup>1, 7</sup> Complications and certain other conditions call for double or triple this amount. These include bacteriemia, multiple lobe involvement, pregnancy or the puerperium, late treatment (beyond the third day), and age beyond 40.

All serum should be given intravenously. The initial dose should be not more than 2 c.c. of serum well diluted in normal saline, and administered very slowly. Several minutes should be required for injection of the first c.c. of the dilution. If no reaction has occurred in one hour, subsequent doses may be given somewhat more rapidly. It is probably best, however, not to make the speed of the injection greater than 1 c.c. per minute.

Best results seem to be obtained if the maximum concentration of antibody can be secured in the patient's blood stream in a very short period of time. Succeeding amounts of serum should, therefore, be given at short intervals, one to two hours, until the full projected dose has been reached. By present methods of refining and concentrating serum it is possible to produce a highly potent product, some commercial lots containing as much as 10,000 units per c.c. With such serums it is frequently possible to give the entire projected dose in one to four injections and within a total elapsed time of six to eight hours. The volume of the individual injection will vary because of the difference in potency between lots of serum. The variation may range from 10 to 50 c.c. Lord and Heffron<sup>7</sup> state that it is advisable not to exceed 50 c.c. for any single dose. In the final analysis, however, it is units of antibody and not volume which determine the effectiveness of serum.

Throughout the entire administration of serum as well as in the performance of the sensitivity tests it is absolutely essential that the physician have at hand and ready for instant use a syringe filled with fresh adrenalin solution so that he may be prepared to cope with immediate anaphylactic reactions, should these occur. Fortunately these reactions are rare but no physician

should assume the risk. The anaphylactic reaction<sup>9</sup> is due to the hypersensitiveness of the patient to foreign protein, and has no relationship to the antibody content of the serum *per se*. This type of reaction comes on immediately or very soon after the introduction of serum and is manifested by dyspnea, cyanosis, substernal pain, urticaria, headache, backache, increase in cardiac and respiratory rate, or drop in blood pressure. These symptoms may occur singly or in any combination. If not too severe the reaction may be controlled by stopping the injection of serum, and giving immediately 0.5 c.c. to 1.00 c.c. of adrenalin solution intramuscularly. If the reaction is very severe, the adrenalin may be given, with extreme caution, intravenously. Negative skin and eye tests offer no absolute guarantee that the patient will not have an anaphylactic reaction.<sup>6</sup>

#### REACTIONS

The mechanism responsible for the thermal and chill reactions<sup>9</sup> which sometimes accompany serum administration is imperfectly understood. Modern methods of refining therapeutic serum have made these reactions much less frequent than they formerly were, but they are still altogether too common, and occasionally are fatal. The chill occurs about one hour after serum has been given, and is self-limited, usually lasting from 20 to 40 minutes. The temperature rise after the chill may be slight to moderate. In exceptional cases the temperature has gone to 108° F. Unless the fever goes above 106° F. the reaction need not give rise to any concern, and the patient can be assured that he will be all right. Additional blankets and warm drinks are of course indicated, but only so long as the patient is actually having chills. Fevers above 106° F. demand immediate steps designed to bring about fall in temperature. These may include alcohol sponges and ice water enemas. A method effectively employed on Bullowa's service at Harlem Hospital, New York City, in counteracting hyperpyrexia is to cover the patient with a wet sheet, and then direct the air current of an electric fan towards him.<sup>1</sup> When the sheet is kept wet, there occurs a rapid evap-

oration of the water with its cooling effect which brings about the desired result. Adrenalin should never be used in the treatment of these reactions.

Still a third type of reaction is serum sickness.<sup>9</sup> This seems to be related to the total amount of serum the patient has received and is a response to the foreign protein as such. It usually occurs one to two weeks after serum therapy, and is manifested by slight to moderate elevation of temperature, urticaria and pruritus, and joint pains. The symptoms occur singly or in combination; they may be ephemeral or may last for several days. Frequently such symptoms are sufficiently severe to make the patient very uncomfortable. Adrenalin and ephedrine for the urticaria and codeine and aspirin for the joint pains are sometimes required. Serum sickness may cause elevation of the temperature a week or more after the patient has had his crisis, but the physician must refrain from attributing all such elevations of temperature to serum sickness. Any delayed or persistent elevation of temperature necessitates careful re-examination of the patient to rule out empyema, spread of the lesion, recurrence of pneumonia, or some other complication.

#### SUMMARY

There can no longer be grounds for reasonable doubt as to the efficacy of antipneumococcus serum. The spectacular results and the lowering of mortality which follow the intelligent employment of this therapeutic agent have been repeatedly emphasized by many observers. The combined experience of these men with several thousand cases of the disease has proved that the mortality can be reduced more than 50 per cent by the proper administration of the serum. The physician, still personally unfamiliar with the striking results which can be obtained, needs but to employ this method of treatment in a few cases to become enthusiastically convinced that prompt bacteriologic diagnosis of his pneumonias, and early adequate use of specific serum will mean, for the majority of his patients, early recovery.

Grateful acknowledgment is made to Dr. J. G. M. Bullowa for placing his slides from "The Management of the Pneumonias" at my disposal.

## REFERENCES

1. Bullowa, J. G. M.: *The Management of the Pneumonias*, Oxford University Press, New York City, 1937.
2. Cooper, G., Rosenstein, C., Walter, A., and Peizer, L.: The further separation of types among the pneumococci hitherto included in group IV and the development of therapeutic antisera for these types, *J. Exper. Med.*, 55:531, 1932.
3. White, Benjamin: *The Biology of Pneumococcus*, The Commonwealth Fund, New York, 1938.
4. Sabin, A. B.: Immediate pneumococcus typing directly from sputum by the Neufeld reaction, *J. A. M. A.*, 100:1584, 1933.
5. Walter, Annabel W.: Difficulties encountered in pneumococcal type determination, *Am. J. Pub. Health*, 28:54, 1938.
6. Rogers, E. S. and Gooch, M. E.: Type I pneumococcus pneumonia; observations from study of 2,000 cases treated with specific serum, *N. Y. State J. Med.*, 38:1369, 1938.
7. Lord, Frederick T., and Heffron, Roderick: *Pneumonia and Serum Therapy*, Revised Edition, Commonwealth Fund, New York, 1938.
8. Horsfall, F. L., Goodner, K., MacLeod, C. M., and Harris, A. H.: Antipneumococcus rabbit serum as a therapeutic agent in lobar pneumonia, *J. A. M. A.*, 108:1483, 1937.
9. Avery, O. T., Chickering, H. T., Cole, R., and Dochez, A. R.: *Monographs of the Rockefeller Institute for Medical Research*, No. 7, 1917.

—o—

## THEOPHYLLINE ETHYLENEDIAMINE (AMINOPHYLLIN) IN BRONCHIAL ASTHMA\*

B. G. EFRON, M. D.

and

PETER EVERETT, M. D.

NEW ORLEANS

Askanazy,<sup>1</sup> in 1895, reported the use of the caffeine and theobromine salts in cardiac dyspneas; theophylline ethylenediamine in bronchial asthma was first reported by one of us, (B. G. E.),<sup>2</sup> at the Atlantic City meeting of the Association for the Study of Allergy in 1935. Since that time several articles have appeared describing the use of aminophyllin in bronchial asthma. Greene and Feller,<sup>3</sup> Efron,<sup>4</sup> Herrmann and Aynesworth,<sup>5</sup> Baldwin,<sup>6</sup> Mitchell,<sup>7</sup> and Halperin,<sup>8</sup> have published reports on this subject.

Theophylline ethylenediamine is a member of the group of methyl xanthines, to which also belongs caffeine and theobro-

mine. The mechanism of the action of the drug is not clear. The effects of the xanthines on the cerebral vessels and the bronchial musculature have not been experimentally established. Greene and Feller have shown, however, that the favorable influence on the dyspnea by the intravenous administration of aminophyllin is related to a decline in the intrathecal and the venous pressures.

The use of aminophyllin in bronchial asthma has been restricted for the most part to the most difficult cases, particularly to those patients who have become epinephrine (adrenalin) fast; that is, to those cases where epinephrine has ceased to exert a definite and lasting effect. The intravenous administration of 0.48 gram (7½ grains) of aminophyllin in 10 to 20 c.c. of solution has been quite successful. Fully two-thirds of epinephrine fast cases of asthma are relieved by the drug. In most instances the relief is prompt and complete, in many cases relief is experienced before the injection is completed. In some cases the relief is delayed. In such instances, the relief is usually only partial. In only the rarest case is aminophyllin totally ineffectual. On many occasions we have felt that it was a life-saving procedure.

At times, we have repeated the administration of aminophyllin at twelve hour intervals, although usually, even in the most severe attacks of bronchial asthma, it has not been necessary to give it more often than every twenty-four hours. We have not observed a single case which has become aminophyllin-fast. In a few instances we have given it almost daily to a patient for a period of months.

Aminophyllin should be given intravenously. Oral administration is ineffectual. Intramuscular injections are impractical because they are too painful. Injections should be given very slowly. We prefer to use a 26 gauge, half inch length needle. We take as long as five minutes to administer the solution. It is essential that the drug be diluted with an adequate amount of distilled water, saline or glucose solution, otherwise unpleasant reactions are more

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 26, 1939.

severe, and sclerosis of the veins will result from repeated injections. We have found that diluting the solution to 10 c.c. is adequate. However, we prefer to use the 0.48 gram (7½ grains) of aminophyllin in 20 c.c. of solution. It is important that extravasation of the solution into surrounding tissues should not occur. Extravasations of aminophyllin solution result in intense burning at the site of the extravasation, and as a rule, require novocain injections to control the pain. Slight pain caused by minute extravasation may be controlled by hot or cold applications locally.

Reactions, more or less unpleasant, although never serious, have occurred fairly frequently. As a rule, an initial hyperpnea with an increase in the intensity of the wheezing is observed. The patient may complain of a feeling of warmth, particularly in the face. A facial hyperemia may be observed. A burning sensation in the eyes, "spots before the eyes", a metallic taste may occur at times. Occasionally there are nausea and vomiting. As a rule, these reactions are evanescent. We have never observed the cerebral type reaction reported by Herrmann and Aynesworth.

#### SUMMARY

1. Theophylline ethylenediamine (aminophyllin) is a valuable and safe therapeutic agent for severe attacks of bronchial asthma. It is particularly valuable in those cases which have become epinephrine-fast.

2. Aminophyllin should be administered slowly intravenously, in 0.48 gram (7½ grains) doses diluted to 10 or 20 c.c. of solution. Care should be taken to prevent extravasation into the perivenous tissues.

3. Unpleasant reactions to the intravenous administration of aminophyllin occur quite frequently, but are usually mild and transitory.

#### REFERENCES

1. Gilbert, N. C. and Kerr, J. A.: Clinical results in treatment of angina pectoris with purine base diuretics, *J. A. M. A.*, 92:201, 1929.
2. Efron, B. G. (Discussion), *J. Allergy*, 7:249, 1936.
3. Greene, Paul and Feller, A. E.: Action of theophylline with ethylenediamine on intrathecal and venous pressures in cardiac failure and on bronchial obstruction in cardiac failure and in bronchial asthma, *J. A. M. A.*, 109:1712, 1937.
4. Efron, B. G. (Discussion), *J. Allergy*, 8:163, 1938.
5. Herrmann, George, and Aynesworth, M. B., Successful treatment of persistent extreme dyspnea; "status

asthmaticus"; use of theophylline, *J. Lab. & Clin. Med.*, 23:135, 1937.

6. Baldwin, H. S.: Theophylline with ethylenediamine, *Internat. Correspondence Club Allergy*, 1:70, 1938.

7. Mitchell, W. F.: Theophylline ethylenediamine in asthma, *Internat. Correspondence Club Allergy*, 1:84, 1938.

8. Halperin, L. J.: Theophylline with ethylenediamine, *Internat. Correspondence Club Allergy*, 1:97, 1938.

#### DISCUSSION

Dr. John H. Musser (New Orleans): In discussing a paper like this, very little can be said, particularly if you feel as I do that the use of aminophyllin in the treatment of asthma is really a splendid remedy. I do not speak from any great experience. It happens we have a considerable number of asthmatic patients coming into Charity Hospital and they come in bad shape. They come in as a last resort because the doctor on the outside cannot do anything for them.

When Dr. Efron asked me to discuss this paper, I started to treat all asthmatics, irrespective of the severity of the attack, with aminophyllin, and really, I can assure you that the results are almost spectacular. I would like to recount two cases in particular, two young women, both of whom had been in the hospital repeatedly and both of whom at their previous admissions had had large doses of adrenalin with little effect. One of these women in particular was, on her previous admission, in status asthmaticus which kept up for six days. I gave her aminophyllin and almost in no time she was comfortable. Within 24 hours, the wheeze was gone. The patient began to expectorate rather freely and comfortably. In this small series we have been able to get the patients out of the ward in two or three days.

I think I really can substantiate Dr. Efron's enthusiasm for the drug and the marked beneficial effects to patients suffering from this unfortunate disorder.

Dr. B. G. Efron (In conclusion): I want to thank Dr. Musser for confirming its value as a therapeutic agent. Usually, when a therapeutic agent is introduced there is a great deal of difference of opinion as to its value. If, after six years, we can still be enthusiastic about a therapeutic agent, and since my first report of its use in 1935 the use of aminophyllin in bronchial asthma has increased tremendously, it appears that its value in this condition is established.

Ever since we have used aminophyllin, we have not had to give any morphine to any asthmatic patient, and prior to that time, on occasion,—although I do not like to use morphine, I have had to use narcotics because nothing else would help. As you very well know, morphine, while an effective drug at times in asthma, in many cases is very dangerous to use in bronchial asthma. Since the use of aminophyllin is restricted to those patients who are not benefited by adrenalin, and since a large number of such persons are

relieved by aminophyllin, you can understand why those who have used the drug are very enthusiastic about it.

## METHODS USED IN THE INDUCTION OF LABOR\*

M. B. PEARCE, M. D.  
ALEXANDRIA, LA.

Careful periodic examinations of the expectant mother, together with regulation of the diet, examination of the urine, taking of the blood pressure and the weight of each will eliminate many of the complications of pregnancy. Prenatal guidance is a prerequisite to good obstetrics. Complications will arise, however, in a relatively few cases which will necessitate the interruption of pregnancy and demand that labor be induced.

Preeclamptic toxemias, increasing severe chronic nephritis, known cases of small pelvis, especially in the multipara who has had prolonged labor before with or without loss of or injuries to the child, are among the chief indications for early induction of labor.

Spontaneous premature rupture of the membranes without onset of labor within twelve to twenty-four hours increases the danger of infection and necessitates steps to induce labor.

### QUININE AND CASTOR OIL

Medicinal and operative procedures or a combination of the two are at our command. Quinine and castor oil is efficacious in from 5 to 10 per cent of the cases at term and can be tried if there is not an urgent need for rapid delivery. The nearer the patient is to term the more likely will this method be effective. The routine treatment is: Castor oil, one ounce at 6:00 p. m.; quinine, 5 grains at 7:00 p. m.; large hot soap suds enema at 8:00 p. m.; quinine, 5 grains at 9:00 p. m.; quinine, 5 grains at 10:00 p. m.

### PITUITRIN

In those patients in whom labor is not established pituitrin is used. Pituitrin may

first be administered by the nasal route after Hofpauer. A dry pledget of cotton is introduced into the nostril under the inferior turbinate and 1 c. c. of pituitrin extract is injected to saturate the cotton by use of an ordinary hypodermic syringe and needle. As soon as rhythmical pains are established the pledget is removed or if no pains occur it is left in place for fifteen to thirty minutes. Occasionally a second try will succeed when the first has failed.

The injection, hypodermically, of three minims of pituitrin every thirty minutes for six doses will often produce strong and sustained labor. When labor supervenes the injections are promptly stopped. Either of these methods is applicable in those few cases when the membranes rupture spontaneously and the labor has not begun twelve to twenty-four hours later even though there has been a continued slow loss of amniotic fluid.

Operative procedures are more certain to produce labor in those patients not yet near term. Bag induction is the method of choice in those few cases of spontaneous premature rupture of the membranes where medicinal measures have failed. Bag induction may also be used in cases of placenta previa, abruptio placentae and uterine inertia.

### BOUGIES

Bougie induction has been used in two cases in this series. In each case the fetal head was floating high and the patients three weeks from the expected date of delivery. In one patient the induction was successful, in the other the membranes were finally ruptured and labor was promptly instituted. In one woman the indication for inducing labor was chronic progressive nephritis and in the other toxemia of pregnancy.

### ARTIFICIAL RUPTURE OF MEMBRANES

American obstetricians first became familiar with the procedure of artificial rupture of the membranes to induce labor by the work of Jackson, Slimons, and Gutmacher and Douglas about 1928 to 1930. The good reports by these authors were not well received. As pointed out by Schuman, it was feared that errors in presentation

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 25, 1939.

would follow its use, that aggravation of the usual injuries to the birth canal would occur, that puerperal infection would often follow and that fetal mortality would be increased owing to prolapse of the cord and other accidents. It has been my experience and that of many others that, contrary to this belief, no such things have happened. I have done artificial rupture of the membranes even as early as the seven and one-half month of gestation in a case of pre-eclamptic toxemia. The baby weighed four pounds at birth and yet safe delivery for mother and child was accomplished.

It has been my experience also that following the artificial rupture of the membranes, the average length of labor is shortened. Others report a like experience and some believe the labor is shortened 50 per cent. According to N. J. Eastman, these gratifying results not only challenge the previous concept of "dry labor" but seem to indicate that the major role long assigned to the bag of waters in cervical dilatation is incorrect.

#### TECHNIC OF RUPTURING MEMBRANES

The method of rupturing the membranes is easy but most scrupulous and gentle technic is to be used. No method of producing the onset of labor by operative procedure is without danger, but, when indicated, this simple procedure meticulously carried out proves safe to mother and child. The patient is prepared as for delivery and placed on the operating table in the dorsal position. The vagina and surrounding area is scrubbed with tincture of green soap and water, dried and painted with 4 per cent mercurochrome. The bivalve speculum is introduced and the cervix exposed. The vagina and cervix are washed with 4 per cent mercurochrome and then dried. Next, a long uterine dressing forceps is introduced into the cervical canal without touching the vagina or other parts. The forceps is allowed to float gently into contact with the membranes. By opening and closing the forceps the membranes will soon be ruptured and as the water begins to flow, the uterine dressing forceps, still in place, is used to dilate the cervix and allow the water to escape freely. The uterine dress-

ing forceps is a sharp, dangerous instrument and must be handled with most gentle technic, but the success of induction of labor may depend not only upon the rupture of the membranes but also upon the amount of amniotic fluid that is allowed to escape. If the presenting part is high and the cervix elongated the more fluid that is removed the closer will the presenting part fit into the lower uterine segment. The uterine dressing forceps is a long instrument and gives the operator a clear vision of the cervix and the opportunity to work easier, to introduce the point without touching the vagina, whereas the short Allis forceps is difficult to use. Only two instruments are needed and none of the patients have required anesthesia. Many of the patients begin having contractions as soon as they are returned to their rooms. The latent period in others is somewhat longer, but in every case labor was successfully induced.

This method is applicable not only in toxemias of pregnancy but in multiparas who have had a strenuous labor prior to the present pregnancy due to contracted pelves. A definite indication such as one of these should be present before the rupture of the membranes is used to induce labor. Promiscuous rupture of the membranes for premature delivery of the normal case is deplorable.

In 286 consecutive hospital deliveries only twenty patients were found needful of early induction. Of these patients, 139 were on the service of my partner, Dr. D. C. McBride, and 147 on my personal service.

There have been twenty inductions of labor as follows:

Chronic severe nephritis induced by bougie method .....	1
Spontaneous rupture of membranes induced by pituitrin .....	1
Small pelves in multiparas who had had extremely difficult labor.....	3
Small pelves in multiparas in whom birth injury had occurred to the child.....	2
Toxemias of pregnancy.....	13
A total of 18 cases induced by rupture of the membranes.	

In the toxemias the earliest rupture of the membranes was done six weeks before,



and the latest one week before the expected date of confinement. The average case was induced 3.2 weeks before the expected date. The lowest birth weight was four pounds, and the average birth weight was seven and one-quarter pounds. Because of careful prenatal care and the early induction of labor in the toxemias of pregnancy there has not been a single case of eclampsia among the private patient deliveries.

## SUMMARY

Throughout this small group of induction cases, there was not a single fetal death or birth injury, and no increase in maternal morbidity.

## BIBLIOGRAPHY

- Mathieu, A., and Holman, A.: The results of induction of labor in 750 cases from private practice, *Am. J. Obst. & Gynec.*, 33:268, 1937.
- Mathieu, Albert: The induction of labor, *Northwest Med.*, 32:59, 1933.
- Crowther-Smith, E. H. de B.: A comparison of the results obtained with three different methods of induction of labor at Guy's Hospital between 1928 and 1932, *Guy's Hosp. Reports*, 84:250, 1934.
- Holmes, Olin M.: Induction of labor using quinine, castor oil, rupture of membranes, and nasal pituitrin, *Calif. & West. Med.*, 41:241, 1934.
- Branstrup, E.: Seventy-three cases of prematurely induced births in narrow pelvis, provoked by breaking amniotic bag following cervical dilatation with Hegar's dilator, *Hospitalstidende*, 70:1004, 1927.
- Holzbach, E.: Ecbolies and the physiologic basis of their use, *Zentralbl. f. Gynäk.*, 61:1281, 1937.
- Van Rooy, A.: The value of induction of premature labor cases of contracted pelvis, *Proc. Internat. Assembly of Inter-State Post Graduate Med. Assn. North Am.*, for 1930. Pp. 302-305, 1931.
- Parache: Means to induce premature delivery, *Siglo méd.*, 71:525, 1923.
- Smith, L.: Antenatal administration of quinine, *Georgia Med. Assn. J.*, 25:225, 1936.
- Plass, E. D., and Seibert, C. W.: Premature rupture of the membranes as a means of inducing labor, *Am. J. Obst. & Gynec.*, 32:785, 1936.
- Eastman, N. J.: Induction of labor, *Am. J. Obst. & Gynec.*, 35:721, 1938.
- Tennent, R. A.: Induction of labor by puncture of the membranes, *J. Obst. & Gynec., Brit. Emp.*, 45:509, 1938.

## DISCUSSION

Dr. E. L. King (New Orleans): All of the indications for the induction of labor have been covered by Dr. Pearce. Of course we can extend the indications but we will not go into that at present.

I would like to make a few remarks concerning induction of labor in contracted pelvis, particularly in the type of cases Dr. Pearce referred to, namely, multiparas with difficult labor accompanied by an over-sized child. In that case we can avoid this over-sized child by inducing labor early.

Regarding the use of quinine: I have become afraid of using quinine in induction of labor. We had some unfortunate results so we are no longer using the original technic; in this technic thirty grains of quinine is given in four hours. This has

had deleterious effects on the fetus. Giving, as Dr. Pearce said, fifteen grains is not dangerous.

I would like to mention something about rupture of the membranes. We use, in the hospital and in private practice, preliminary doses of castor oil, one or two ounces, followed by an enema and a couple of hours later we rupture the membranes. The method spoken of is a little better because of the exposed cervix, and there is no risk of carrying infection. We feel that we should induce labor only in vertex presentations. We are a little afraid of rupturing membranes in breech presentations for fear of prolapse of the cord. We had that to happen on one occasion.

In induction by rupture of the membranes one should always be sure the head is well down in the pelvis and not floating; in this latter case we think a catheter is better.

With the membranes ruptured by one of the technics mentioned, the next thing is to get the patient out of bed and up and around, bringing the head down in the pelvis and lessening the danger of a prolapsed cord. As soon as the patient is up she should be given two or three minims of pituitary extract by hypodermic. Be cautious about this and give only one or two doses; the pituitary then should be discontinued. It is a mistake to give this after contraction is started.

---

## UNDULANT FEVER—A PROBLEM IN EVERY PHYSICIAN'S PRACTICE\*

W. H. BROWNING, M. D.

and

J. S. SHAVIN, M. D.

SHREVEPORT, LA.

The title of this paper was purposely chosen because it expresses the idea that every physician, whether he be a general practitioner, specialist or laboratory man, (which includes the clinical pathologist and roentgenologist) has encountered or will encounter brucellosis in one of its protean manifestations. It is our opinion that if he has not identified a case in his practice, the diagnosis has probably been missed. Like the proverbial poor, "It is always with us."

We have used the term "undulant fever" only to emphasize our condemnation of what it connotes or brings to mind. As others have expressed before us, the fever

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, on April 24, 1939.

is usually not undulant and sometimes there is no fever.

#### HISTORICAL

The history of brucellosis is replete with errors. To most of us, it has, for many years, been an obscure disease simulating almost any of the known fevers and debilitating conditions. It is a disease which has compelled no little attention in recent years, since better diagnostic methods have been available.

The disease was first recognized in the Mediterranean area by Marston in 1861. In 1887, Bruce, a British Army physician, isolated a micrococcus from man and transmitted it to monkeys. He called it *Micrococcus melitensis*. Hughes, in 1896, named the condition undulant fever, a term which has since been proved inaccurate. In 1907, Bang isolated the organism responsible for cattle abortion and it was subsequently named Bang's bacillus for him. In 1898, Musser and Sailer first reported a case in the United States<sup>1</sup>. In 1911 Schroeder and Cotton found *Brucella abortus* in milk on the open market and suggested possible human infection by this route. In 1914, Traum found *Brucella abortus* in swine fetus. In 1917, Alice Evans, of the United States Public Health Service, showed the intimate or identical relationship of the organism in both man and animal. She prefers the name brucellosis. In 1924, Keefer of Johns Hopkins reported one case in a patient without goat contact thus proving that direct transmission was unnecessary.

#### ETIOLOGY

Epidemiologically, brucellosis is not one disease. It is a group of three closely related diseases caused by three varieties of brucella which differ as to animal host, mode of dissemination, pathogenicity and infectivity for man<sup>2a</sup>.

Morphologically, the organisms are coccoid, intermediary oval and bacillary in shape. They are small, non-encapsulated, non-motile and gram negative. The most common types of brucella are: *Brucella melitensis* (goat or caprine), *Brucella abortus* (cattle or bovine), *Brucella suis* (swine or porcine). There are also the equine,

avian and other types. The organism will grow in beef liver infusion agar and the various types may be differentiated from each other by their viability in the presence of certain dyes such as thionin, or basic fuchsin.

Brucellosis is primarily a disease of animals. Evans estimated, after a series of tests, that 6 to 10 per cent of all cattle in this country excrete brucella in milk. No doubt a higher incidence exists since all do not excrete the organisms. Brucella may be eliminated by so-called "healthy cow carriers"<sup>3</sup>. Some authors quote 15 per cent as being more nearly the actual number infected.

The acquisition of the disease in human beings may be through contact or ingestion. It may be contracted directly from cattle, swine, goats, sheep and horses. Contact infection in France is five times more common than ingestion<sup>4</sup>. It has been shown that it is easier to transmit the disease by contact than by ingestion. Veterinarians, butchers and employees of meat packing houses and abattoirs usually acquire the infection directly by contact. Amongst veterinarians, 50 to 60 per cent have been shown to have brucella agglutinins<sup>5</sup>. Some writers quote 40 per cent incidence among farm folks who, of course, are doubly exposed, both by contact and ingestion<sup>5</sup>. There is no evidence of contagion from man to man.

Beattie, in England, found that 20 to 35 per cent of raw milk contained *Brucella abortus*. Infection in England is mainly by ingestion<sup>6</sup>.

Although primarily a disease of animals, it is nevertheless extremely prevalent among human beings, much more so than has previously been suspected. According to Starr, lack of even greater prevalence in spite of extensive ingestion of raw milk and wide distribution of the disease in dairy cattle, can be blamed upon:

1. Most abortus strains from cattle are comparatively non-pathogenic.

2. Clinical disease follows contact with, or ingestion of, enormous doses of abortus except in especially virulent strains.

3. Most people have some immunity, natural or acquired.

4. In general, infectivity is greater by contact than through ingestion.

Only 112 cases of brucellosis were reported, in the United States, in 1927. In 1937, 2,497 were reported. One-sixth of this number was reported from Oklahoma alone, whereas, in the year preceding, there were only 96 cases reported from this state. It is suspected that an even higher number will be reported for 1938<sup>7</sup>.

No doubt the interstate transfer of cattle accounts for some increase in the incidence of this disease but the increase is not as much as indicated by the reports from Oklahoma. It is evident that the physicians of Oklahoma are becoming more conscious of this disease and are reporting more cases. It is a known fact that many of our cases in the United States are not reported.

#### SYMPTOMATOLOGY

There is one constant symptom, weakness<sup>8</sup>. Other prominent symptoms are: Sweating, headaches, fever, insomnia, abdominal or joint pains, pains localized to the back or spine, generalized pain, anorexia, loss of weight, constipation, nervousness, cough, and rigors. Bierring believes that the most constant symptoms are sweating, particularly of a nocturnal, profuse, drenching type; weakness; continuous fever with undulating curves; and an apparent sense of well-being which may confuse the picture<sup>2b</sup>. The most characteristic thing regarding the fever is its absolute irregularity.

Signs noted consist mainly of: Leukopenia, palpable spleen and abdominal tenderness.

An acute attack usually results in spontaneous or complete recovery in from one to six months but relapses are not infrequent and may be noted over a period of one to two years.

Angle believes that the subclinical and ambulatory groups make up the majority of the cases of brucellosis<sup>2c</sup>.

It is usually found about twice as often in males as in females, varying as to the mode and manner of infection. Males are usual-

ly infected through farm or packing contacts, while the females are usually infected by raw dairy products either through ingestion or by handling.

About 2 to 3 per cent of patients die from brucellosis.

#### TESTS

Laboratory work in brucellosis is valuable because of the vague symptoms presented in the average case. The most commonly employed tests are:

*Skin Test:* In the skin test heat or formaldehyde killed organisms are used. The endo-protein is extracted by the Besredka method or a nucleo-protein suspensoid of brucella called "brucin" may be employed. One-tenth of a c.c. of 1:50 solution in saline is injected intracutaneously and a wheal about 5 mm. in diameter is produced. A strong solution should be avoided as there is danger of slough when the reaction is severe. The appearance of an indurated area of erythema measuring from 0.5 to 7.5 cm. in diameter and remaining for forty-eight hours or more is considered positive. Some consider no reaction positive unless it remains seven to ten days or more. Often when such a reaction is present, it may remain from eight to ten weeks and be visible for a year. A faint pink, transient area, without induration, is negative.

*Agglutination Test:* The patient's serum, in varying dilutions, is tested for agglutination in the presence of a specific brucella antigen. It may become positive within two to three weeks after the onset of symptoms, and become negative a few months after the fever subsides.

*Opsonocytophagic Test of Huddleston:* This is an index of the degree of immunity, or lack of immunity, to brucella exhibited by the blood of an individual. It is determined by the action of blood phagocytes in the presence of a measured quantity of brucella organisms for a definite period of time. The number of organisms engulfed determines the degree of immunity possessed by the individual tested. In the test, a fresh bacterial suspension from pure culture should be used and cultures should be checked for "fastness" to phagocytes.

Occasional strains tend to become "fast" to cellular ingestion.

*Culture*: Cultures of blood, urine and feces may be done and are helpful but slow and require special equipment. They are rarely used in clinical practice.

A positive skin test indicates past or present infection resulting in sensitization of the individual to the brucella antigen.

Positive agglutination suggests brucella infection in a patient with an undiagnosed disease. Negative agglutination is of no significance. It may be present even during the most severe stage<sup>9</sup>. Anti-abortus agglutinins develop only when actual invasion of the tissue by living organisms has occurred<sup>10</sup>. There is no evidence, at the present time, that agglutinins are absorbed passively through the intestines from pasteurized milk containing killed organisms. Positive agglutinations may occur commonly in animals without signs of disease and can occur without postmortem lesions.

Evans believes that agglutination titer of 1:40 is the minimum suggestive of infection<sup>11</sup>. A positive diagnosis is recognized by some with an agglutination of 1:80 or above<sup>9</sup>. Five per cent of clinical brucellosis cases exhibit no agglutination whatever<sup>9</sup> and a skin test is needed to support or eliminate the diagnosis. Repeated negative agglutination tests or blood cultures do not entirely eliminate the possibility of brucellosis. In spite of many symptoms, the agglutination tests may never become positive.

#### DIFFERENTIAL DIAGNOSIS

With each year, more and more data are accumulating which point toward an explanation of many conditions and illnesses present under our very noses (treated, improved or unimproved), but not satisfactorily explainable from the standpoint of any one clinical condition, yet, which upon analysis from a standpoint of brucellosis are almost typical of the disease.

Its variability should lead us to suspect it in any condition where the patient feels out-of-sorts most of the time, weak, tires easily, has spells of scattered aching at no definite point, nor necessarily constant, and

low-grade fever, although the latter is not absolutely essential.

The acute form of brucellosis is mistaken for typhoid, malaria, rheumatic fever, endocarditis, tuberculosis, bronchopneumonia, bronchitis and influenza. In cases of unexplained fever or prolonged disability of a neurasthenic type, brucellosis should always be considered. It is often diagnosed as neurasthenia because of complaints of exhaustion, weakness, insomnia, irritability, aches and pains, without objective signs.

Basset-Smith says that nearly every case has been misdiagnosed once<sup>8</sup>. Stone and Bogen state that less than 10 per cent show enough clinical symptoms for a diagnosis<sup>12</sup>. Looking back, through several years of practice, we can recall many cases, undiagnosed, which were almost typical of the disease and would gladly give almost anything to have these cases back for a recheck. We have heard, since then, that some of these patients have been examined and re-examined and have been subjected to various types of treatment for malaria, neurasthenia, psychoneurosis and other obscure conditions. Could the hands of time be turned back and with our present-day knowledge, those patients would stand a much better chance for relief from their symptoms with the avoidance of the waste of time and expense and the needless shifting around from doctor to doctor in a desperate, futile attempt to obtain relief from this insidious disease.

Recently, a prominent psychiatrist who, by the way, was one of the many sufferers from the disease and also a victim of delayed diagnosis, attested to us that in his opinion many cases of brucellosis will, in the future, be found to be the basic cause of psychasthenia and psychoneuroses when accompanied by a low-grade fever unexplainable by any other cause.

#### IMMUNOLOGY

One attack apparently provokes a lasting immunity<sup>13</sup>. Reinfection has been reported but is probably recurrent<sup>13</sup>.

Diehl and Roth state that *Brucella abortus* is chiefly a disease of the reticulo-endothelial system of which the spleen and liver

are important organs and major factors in the formation of anti-bodies<sup>14</sup>. This explains why in an active process the anti-bodies may decrease to such an extent that serologic diagnosis is impossible, making a cutaneous test or culture essential<sup>14</sup>.

Leathers says that brucella probably do not multiply in milk but there may be a small quantity well-diluted as a rule, which stimulates an immunity<sup>15</sup>. This explains the low infectivity and susceptibility of the general population.

Veterinarians frequently acquire an immunity without developing the symptoms<sup>13</sup>. Nevertheless, there is considerable danger to human beings from vaccinating cattle with living organisms.

#### TREATMENT

Important general considerations in the treatment of brucellosis are: (1) Early diagnosis; (2) bed rest; (3) supportive measures.

Various treatments have been proposed and used for a number of years, consisting, chiefly, of arsphenamine, acriflavine hydrochloride, methylene blue, colloidal metals, non-specific proteins, hemotherapy, serotherapy, specific and non-specific vaccines (by intramuscular, subcutaneous and intravenous routes), fever therapy (typhoid vaccine and inductotherm).

Many of the patients seen have been cured spontaneously, others with the aid of doctors, and still others in spite of doctors.

Carpenter and Boak believe that good results depend on the intensity of generalized systemic reaction evoked by injection, the type of vaccine playing little part and that attribution of favorable results to specific vaccine effect is unjustifiable<sup>10</sup>. However, many cures are obtained without induction of fever. Spontaneous recovery often takes place. Ervin treated 20 patients with intravenous typhoid and paratyphoid vaccine and believes that it is the most practical, most easily available, and most economical method for the average physician with the occasional case<sup>16</sup>. There is danger of fatality, however, in the use of typhoid vaccine as any who have used it extensively will attest. Benefit seems to be from the

thermal reaction although he also believes that there is sufficient non-specific antibody formation to overcome the disease and that this is an important factor in the cure. The blood picture suggests a response of the reticulo-endothelial phagocytes to the vaccine.

Others have used hyperthermia in the form of the inductotherm with good results. These claim that the most successful treatment has apparently been accompanied by high fever whether vaccine, toxic filtrate, serum, chemical, foreign protein, or inductotherm.

Recently there have been reports on the use of sulfanilamide and neoprontosil in brucellosis. Prompt clinical cures were obtained by some and no beneficial results by others.

One author treated 20 patients, most of whom were in the acute stage, with neoprontosil, obtaining poor results in the first three cases—apparently due to insufficient dosage, but excellent results in the remainder. If no results are obtained in one week, it is felt advisable to discontinue its use. Apparently a maximum dosage seems to be necessary both in the use of sulfanilamide and neoprontosil.

Convalescent blood transfusion was used in two patients with clinical cure one and two months after onset<sup>17</sup>. However, each resulted in a reaction following transfusion.

Most physicians report good results with the use of "Brucellin" but there is as yet no adequate or controlled series of tests to prove its efficacy.

The method we have used mainly, consists of increasing doses of brucellin hypodermically, the dosage being just short of that amount which will produce an aggravation of symptoms but which will stimulate a maximum amount of antibody production tolerated at that stage of treatment. The first dose should consist of 0.05 c.c. of the antigen, increased every fourth day by 0.05 c.c. or 0.1 c.c. provided no severe reaction is encountered between injections. The maximum single dose is 1 c.c. and when reached, should be repeated weekly for several months.

## PREVENTION

Brucellosis is gradually being forced upon our attention as a widespread, important, debilitating disease of almost equal importance with malaria from the standpoint of morbidity, public health, incapacitation and general debility.

Adequate pasteurization is the only positive safeguard against contracting the disease through milk. If all milk were pasteurized, there would be no human brucellosis except by means of contact.

The examination of milk and serum and the elimination of herds of diseased animals is an effective method for the control of brucellosis on farms and in communities where pasteurization of milk is impractical and is advised in dairy herds even when pasteurization is available. The cost to the health department and to the cattle owners is not excessive. Results justify the work. The federal and state subsidy to compensate for losses incurred by the elimination of positive reacting cattle approaches the actual loss closely. The value to public health and to improving milk production more than compensate for the remainder.

The deplorable feature of this situation is its low mortality and the ease with which it can be eradicated. Were the mortality higher, it would long ago have been hounded down and driven out. Yet, in spite of its high morbidity, it is a disease, the eradication of which does not nearly approach or present the difficulties encountered in the elimination of a condition such as malaria or tuberculosis. Treatment of the human being, proper handling of the milk problem, elimination of positive reacting cows, and the avoidance of hand contact in veterinarians, meat packers and abattoir employees, could easily solve the problem.

## SUMMARY

1. Undulant fever, or brucellosis, is a problem in every physician's practice. Its presence is widespread and it is undiagnosed or misdiagnosed frequently.

2. Infection is through contact or ingestion, depending on the patient's occupation and the degree and length of exposure to the animal or its products.

3. The symptomatology is vague, with weakness as the most constant symptom. The chronic or ambulant form is probably more frequently seen and missed than the acute form.

4. The most reliable tests are the intracutaneous and blood serum agglutination. The opsonocytophagic test and blood culture are more difficult and less practical in clinical practice.

5. Treatment in human beings is a choice between hyperthermia, neoprontosil and brucella antigen with the latter preferred by us.

6. More attention should be paid, by all, to the prevalence and wide distribution of the disease and the damage it is causing in our daily lives. Prevention can be accomplished by the elimination of all infected animals and pasteurization of all dairy products.

## REFERENCES

1. Rutherford, C. W.: Papilledema in undulant fever, *J. A. M. A.*, 104: 1490, 1935.
- 2a. Hardy, A. V., Jordan, C. F., Borts, I. H.: Undulant fever, *J. A. M. A.*, 107: 559, 1936.
- 2b. Bierring, W. L.—Discussion.
- 2c. Angle, F. E.—Discussion.
3. Thompson, R.: Elimination of *Brucella abortus* with milk of "carrier" cows, *J. Infect. Dis.*, 55: 7, 1934.
4. Foreign Letters (Paris): Prophylaxis against undulant fever in France, *J. A. M. A.*, 111: 71, 1938.
5. Starr, L. E.: Undulant fever, its relation to brucellosis in domestic animals, *J. A. M. A.*, 102: 902, 1934.
6. Beattie, C. P.: Incidence of brucellosis clinical and latent among various groups of population, *J. Hygiene, London*, 38: 260, 1938.
7. The prevalence of brucellosis in the United States, Public Health Reports, Washington, D. C., 53: 1195, 1938.
8. Evans, A. C.: Chronic brucellosis, *J. A. M. A.*, 103: 665, 1934.
9. Diagnosis of Undulant Fever: Queries and Minor Notes, *J. A. M. A.*, 102: 1633, 1934.
10. Carpenter, C. M., Boak, Ruth; Chapman, O. D.: Significance of *Brucella abortus* agglutinins in human serum, *J. Immunol.*, 17: 65, 1929.
11. Evans, A. C., Robinson, F. H., Baumgartner, L.: Studies on chronic brucellosis: IV. Evaluation of diagnostic laboratory tests, Public Health Reports, Washington, D. C., 53: 1507, 1938.
12. Stone, R. V., Bogen, E.: Studies of correlated human and bovine brucellosis, *Am. J. Public Health*, 25: 580, 1935.
13. Answers to Queries: *J. A. M. A.*, 102: 1221, 1934.
14. Diehl, F., Roth, F.: Hepatolienal syndromes in *Brucella abortus* infection, *Deutsches Arch. f. klin. Med.*, 178: 271, 1935.
15. Leathers, W. S.: Discussion of: Undulant Fever (Keller, et al), *J. A. M. A.*, 107: 1373, 1936.
16. Ervin, C. E., Hunt, H. F.: Undulant fever, *J. A. M. A.*, 109: 1966, 1937.
17. Creswell, S. M., Wallace, C. E.: Immunotransfusion in undulant fever, *J. A. M. A.*, 106: 1384, 1936.

## DISCUSSION

Dr. M. B. Pearce (Alexandria): Drs. Browning and Shavin have emphasized the most import-

ant feature of undulant fever and that is its eradication. Infected herds should be carefully watched, infected animals done away with and pasteurization encouraged.

The diagnosis is at times extremely difficult. Differential diagnosis of this disease from other fevers is always a problem. Weakness is a predominant symptom. Agglutination tests are the most reliable, but if no reactions occur and no exacerbation of symptoms upon administration of the vaccine, one should be suspicious that the diagnosis is incorrect.

Within the past four years I have treated seven patients with Malta fever. Two became apparently well by symptomatic treatment alone. I have doubted that these two really had Malta fever, although the agglutination was positive in 1 to 160 dilution. Four were successfully treated by vaccine therapy. One failed to respond to vaccine therapy, although the vaccine produced fever 105½ degrees. The patient finally went to the Mayo Clinic where the diagnosis of Malta fever was confirmed and since he had had vaccine therapy, he was given fever therapy by means of the inductotherm. He was completely relieved of the disease and has had no return of symptoms within the past two years.

---

### TRIGEMINAL NEURALGIA\*

DEAN H. ECHOLS, M. D.†

NEW ORLEANS

There have been no important new developments in the understanding or therapy of trigeminal neuralgia during the last 10 years. In fact the methods of diagnosing and treating this disease have practically become stereotyped in all neurosurgical clinics. Nevertheless, a brief survey of the subject may not be out of place.

Trigeminal neuralgia, or tic douloureux, is a disease whose sole manifestation is pain in the distribution of one or more divisions of the trigeminal nerve. The pain comes in paroxysms and is usually described as shooting, jumping, stabbing, or like electric shocks. The adjectives which the patient uses in describing the attack is of the greatest importance, for the diagnosis depends largely on this factor. Migraine,

Sluder's neuralgia, infected teeth and diseases of the nasal sinuses cause entirely different types of pain, such as throbbing, aching, burning, boring or bursting. These are continuous steady varieties of discomfort. But in tic douloureux the pain is never constant or prolonged. It is invariably a darting, lancinating, lightning-like pain which lasts a few seconds or rarely a minute or two. In tic douloureux there may be some residual dull pain which is present for long periods but usually the patient is completely comfortable between attacks. The pain is most commonly experienced in the upper lip, cheek, upper gum and palate (maxillary division). It is next most common in the lower lip, lower gum and tongue (mandibular division). Less frequently it is in the eye and forehead (ophthalmic division). The pain never crosses the midline of the face. Tic douloureux has frequently been described as the worst pain which humans experience. If the attacks were not so transient every victim would be forced to commit suicide. Some patients suffer their pains in statuesque silence while others go through various grotesque contortions. Often the pain is sufficient to knock a person down. Patients with this disease practically never become morphine addicts because the pain is so transient. The following motion picture illustrates some features of the disease.

This film (motion picture) demonstrates well the agony experienced by a patient during a paroxysm. Behavior at these times varies with the individual. You will note that this man holds his head with his hands, makes chewing movements, closes the eyes and rocks forward and backward. Observe, also, that he has two separate attacks in quick succession.

#### DIAGNOSIS

The neurologic and physical examinations give negative results in tic douloureux as do roentgenologic and other laboratory studies. There is, however, one important aid in the diagnosis, namely, the trigger zone. In three-fourths of the patients there is a small area on the face which sets off an attack if it is touched or moved. This

---

\*Read before the Orleans Parish Medical Society, April 10, 1939.

†From the Department of Surgery, Tulane University, School of Medicine.

trigger zone is usually on the lip, the angle of the mouth or the side of the nose. This trigger may be so sensitive that the patient cannot wash the face or shave. Sometimes talking or chewing sets off the attack. For this reason the victim may lose a great amount of weight.

#### ETIOLOGY

The cause of this disease is still unknown. Histologic examination of the nerve, its ganglion and the brain fails to offer an explanation. One thing seems certain, namely, that the disease is not caused by infection of the teeth or the nasal sinuses.

#### AGE

Approximately 85 per cent of the patients have their initial attacks after the age of 40. It is slightly more common in women than in men.

#### COURSE OF THE DISEASE

There is never any doubt as to the time of onset of tic douloureux. The patient is no more likely to forget the date and circumstances of the first seizure than he is to forget an attack of gall stone colic. Between the first and second seizures there may be an interval of months or years. However, as the patient grows older the attacks become more and more frequent. As far as I know permanent relief from pain has never occurred spontaneously nor as the result of any treatment which did not produce anesthesia of the face.

#### TREATMENT

Surgical section of the fifth nerve inside of the skull is the best method of curing tic douloureux. The only alternative method is alcohol injection of the gasserian ganglion. For reasons which we need not discuss now every neurosurgeon reserves alcohol injection of the ganglion for patients who are exceptionally poor surgical risks. Operation is distinctly the procedure of choice. It is performed under local anesthesia with the patient sitting up in a special chair. An opening the size of a half dollar is made in the skull just in front of the ear and the gasserian ganglion is approached extradurally. The brain is not seen. All or only part of the sensory fibers may be cut. If the patient has no pain in the region of the eye it is well to spare

the corresponding fibers. The motor division of the nerve is identified and left intact. The average number of postoperative days in the hospital is seven.

There are only two other methods of treating this disease, namely, destruction of the peripheral branches of the nerve and the inhalation of trichlorethylene. Neither of these procedures is ever carried out with the hope of curing the disease. They are simply uncertain methods of temporarily relieving patients who are not yet suffering attacks sufficiently often to want the operation.

#### RESULTS

Intracranial section of the fifth nerve is probably the most completely satisfactory common procedure in neurosurgery. Without reservation complete and permanent relief from the pain can be promised and the patients are among the most grateful surgical patients to be found.

Naturally, certain undesirable effects are produced by the nerve section. All or part of the face, depending on the number of fibers cut, will be partially anesthetic. Most patients quickly become accustomed to this numbness but a few complain of it for months. When the sensory fibers to the upper face have been cut because of pain in that region, anesthesia of the cornea results. In a small percentage of such cases corneal ulceration may take place. Paralysis of the muscles of mastication should not occur. There is rarely a facial paralysis and when it does appear is transient.

#### CASE REPORT NO. 1

Mr. C. J. S. (in person), aged 44, was referred by Dr. Simon Rosenthal, New Orleans. This is the patient shown in the motion picture. Five years before operation, at the age of 39, he had the first attack of pain while drinking a glass of water. He saw a physician immediately who made a correct diagnosis of tic douloureux. From that time on the seizures were frequent, the longest remission being three months. Trichlorethylene inhalations were used at times and seemed to give some relief. A single alcohol injection was of no benefit. All of his teeth had been extracted 10 years before the first attack of tic douloureux. When I first saw him the paroxysms were actually occurring every five minutes and the patient was discussing suicide with his family and business associates. The pain involved the entire right half of the face and tongue.



On April 26, 1938, under local anesthesia, the fifth nerve was sectioned intracranially by the temporal route. He insisted on going home on the fifth postoperative day and was working at full capacity on the thirteenth postoperative day. Approximately one year later we find him well and normal except for hypalgesia and hypasthesia of the entire right half of the face and tongue. Although the cornea is anesthetic he has no trouble with the eye. When out-of-doors he wears a shield on his glasses to keep dust from blowing into the eye. However, indoors he is unwilling to wear the glasses. There is just one unusual feature in this case, namely, the atrophy of the muscles of mastication on the right side. This is due to destruction of the motor division of the fifth nerve and is a complication which should not and does not happen very often. However, it is not serious and as he states it does not bother him in any way.

## CASE REPORT NO. 2

Mrs. M. H. (in person), aged 65, from Hutchinson Memorial Clinic. Five years before operation, while eating a sandwich, the patient experienced a shock of pain at the left corner of the mouth. Other attacks followed and gradually involved a larger area of the face. In addition to the typical paroxysms of shooting pain she had a more or less constant tingling pain in the face. The trigger zone was specially sensitive and she drank all fluids through a glass tube. Even a cool breeze touching the face would set off an attack. During this five year period of pain she had repeated alcohol injections by several surgeons. Some of them gave temporary relief but she came to dread the injections as much as the attacks.

On January 19, 1939, the sensory division of the fifth nerve was sectioned under local anesthesia. We are seeing the patient now approximately three months after the operation. She has gained weight and is well and normal in every way except for slight paresthesia and diminished sensation on the left side of the face, mouth and tongue. Although the cornea is anesthetic there have been no ill effects.

## CASE REPORT NO. 3

Mr. C. F. (in person), aged 59, from Charity Hospital of New Orleans. Fifteen years ago this man experienced a lightning pain in one side of the face. Since then attacks have been frequent and terrible. He would actually fall to his knees on the sidewalk if an attack would come on while walking. Alcohol injections have been given without more than a few weeks of relief. For the past 15 years he has been of no use to himself nor anyone else. He has been entirely preoccupied with thoughts of the next pain. Fortunately, he could not quite bring himself to commit suicide. Because chewing initiated seizures he lost about 100 pounds. On March 1, 1939, the sensory division of the fifth nerve was sectioned under local anesthesia. We see him now approximately six weeks

after operation. He is gaining weight and is normal except for the diminished sensation in half of the face. The cornea is anesthetic but has given no trouble.

## CASE REPORT NO. 4

Mrs. K. C. (in person), aged 39, from Charity Hospital of New Orleans. She has had shooting pains in the left side of the face for the past six years. The longest period of freedom from attacks was four months. On April 4, 1939, a differential section was made of the fifth nerve by the temporal approach under local anesthesia. Because her pain was limited to the lower half of the face it was not necessary to make the upper part of the face anesthetic. Consequently, the fibers destined to form the ophthalmic division of the nerve were not disturbed. She now presents diminished sensation only in the lower half of the face. The corneal reflex is present.

## SUMMARY

The important aspects of tic douloureux have been discussed briefly. Four patients were demonstrated who had been cured of the disease by the standard method of sectioning the sensory fibers of the fifth nerve immediately central to the ganglion.

## DISCUSSION

Dr. Gilbert C. Anderson (New Orleans): Dr. Echols, I think, covered the various manifestations and subject matter of this condition sufficiently well to require no attempt at further elucidation on my part. I would like to say, however, that there are one or two things to remember particularly about this disease. He brought them out: I simply repeat them for the benefit of emphasis.

It is one of the few conditions which we have in medicine where the diagnosis is absolutely dependent on the history. These patients may present the most distressing picture imaginable, but have no physical signs whatever. Dr. Echols spoke of the "trigger area" that is commonly present but even that may be absent. The pain is never constant. It could not be tolerated if it were. There are many conditions associated with pain in the face which are thought to be true trigeminal neuralgia which can generally be differentiated by careful description of the attacks; what precipitates them, how long they last, and how the patient feels between attacks. As he says, they are commonly brought on by eating and drinking, shaving, or even the cold air blowing on the side of the face. He has shown patients tonight in whom there was a tremendous reduction in weight, simply because they were afraid to eat. They are reduced to a state of starvation simply because they are afraid to eat or drink. And they are also frequently very dirty because they cannot shave or wash their faces. It is not a question of soap, just that they cannot touch the face with anything. Sometimes they come in with a shawl

held around the head, peeping out at you, afraid to go near you, afraid that you will examine them manually. When you see a case like that, there is not much chance of mistaking it. As Dr. Echols says, the only permanent relief of pain is by section of the posterior root. However, other methods may give temporary relief, but how long relief is going to last is something impossible to predict. Preliminary alcohol injection has one advantage, presuming of course that it is successfully carried out. It teaches the patient what to expect from posterior root section and it gives him an opportunity to compare the condition of hemi-anesthesia with the pain he has had. Some patients will come back five to six years later and say that they wish they had the pain back, instead of the paresthesia. I think it is almost axiomatic that people with this condition will sooner or later come to surgery, provided they live long enough.

Dr. George F. Fasting (New Orleans): There is something I would like to ask Dr. Echols: A couple of years ago the Proceedings of the Staff Meetings of the Mayo Clinic gave the microscopic findings of ganglia of trigeminal nerves removed at operation. There was evidence of chronic and acute inflammation and no micro-organisms were seen. May this have any similarity to inflammations of the sciatic nerve? I realize material for this study is hard to obtain, but Dr. Echols may possibly have encountered it.

Dr. Erwin Wexberg (New Orleans): As Dr. Echols has already pointed out, the problem still unsolved in trifacial neuralgia is how to localize the lesion. If you presume, as Dr. Fasting suggested, that it might be located in the gasserian ganglion, it could not be explained why treatment of the peripheral nerve may give even temporary relief. The strange fact is that sometimes we do not even have to do anything about the nerve itself. In the beginning of the disease, the extraction of a tooth may give relief for several months. However, when, after recurrence of the pain, another tooth is extracted relief will last much less time, and finally further extraction will not have any effect at all.

Recently it has been brought out by F. H. Levy, Philadelphia, that certain facts support the assumption of the optic thalamus being the place where the lesion in trifacial neuralgia is to be located. According to him, trifacial neuralgia would be a particular form of a thalamic syndrome. Surgical procedures in the periphery and even in the ganglion would only serve to eliminate stimuli which may bring on the paroxysms either by removing the focus of inflammation or by producing anesthesia. This theory would account for the fact otherwise unexplainable, that recurrence of the disease has been observed after post-ganglionic radiculotomy. It seems to be a fact that while, in the majority of cases, the elimination of sensory

stimuli by radical surgery suffices to eliminate stimuli at large, there may be cases in which stimuli of another kind, for instance vasomotor changes which are quite independent of the peripheral nerve and the ganglion, may touch off the paroxysms.

—————o—————

## FRACTURES OF THE MALAR BONE AND ZYGOMA WITH EYE, EAR, NOSE AND THROAT COMPLICATIONS\*

MONTE F. MEYER, M. D.

NEW ORLEANS

There has been very little attention given to fractures of the malar and zygoma bones in the standard text books of surgery, but they occur frequently enough to deserve some thought. Fractures of the malar bone are not as frequent as those of the zygoma, which is more prominently exposed and forms a guard at the lower margin of the eye. The advent of frequent facial injuries from automobile collisions and accidents has forced more attention to these fractures. Striking the face against the cowl, the steering wheel, or the instrument board, or against the front seat when the car is brought to a sudden stop, often adds incised or punctured wounds to the fracture of the bony supports of the face. This is particularly true of the case of small children who play around in a car, and are unable to brace themselves quickly enough against the sudden stop. The most frequent causes of these injuries are direct violence either by firearms, other sharp instruments, or blunt force as the fist, or a blow by the knee in football, or other sports. Fracture may occur from within by falling with sticks held in the mouth.

The fracture may involve the malar bone alone as a depression or a linear crack. The suture lines connecting neighboring bones may be disrupted or the adjacent structures, especially the superior maxilla may be fractured. At the same time the malar bone is often fractured alone, but the frontal bone, the base of the orbit and other structures may be involved.

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 26, 1939.

Frequently the target for blows with the fist, the zygoma is easily detached from its moorings and driven backwards and inwards toward the temporal fossa, and if the displacement of the fragment is pronounced, the coronoid process of the mandible may be impinged upon, thereby interfering with the movements of the lower jaw.

#### SYMPTOMS AND DIAGNOSIS

Although the bone is subcutaneous, it is difficult to palpate, because it merges with surrounding bone. Both cheeks should be examined at the same time, standing behind the patient to feel the zygomatic arches and the rim of the orbit. The facial skin and tissues are freely movable upwards, and the malar processes of the superior maxilla, the lower border of the orbit and the zygomatic processes of the frontal bone can all be outlined. By comparison of the two sides, variations in the position of the interlying malar bone can be made out; the lower border being also palpable by fingers hooked under it back to the temporo-maxillary joint. X-rays can be obtained in different positions to outline the fracture and the position of the fragments will determine the treatment.

Deformity caused by depression or lateral displacement of the bone with swelling-mobility and crepitus in the zygoma, are the diagnostic symptoms. The ecchymosis and swelling about the orbit may obscure findings for a few days, or if the wound is open the loss of bone continuity may be seen or felt with a probe.

Probably the most frequent finding is the asymmetry of the face, due to the crushing back of the malar bone with deformity of the orbit and flattening of the upper part of the face. The position of the eyeball may be changed, either due to the actual pressure by the fragments, or due to massive infiltration of blood in the orbit, which will seriously affect the mobility of the globe. Subconjunctival hemorrhage is of practically constant occurrence, and may be limited or extensive.

Function of the jaws is seldom interfered with unless there is a backward dislocation of the fragments impinging upon

the coronoid process and locking it (as in one of the patients), or an accompanying fracture of the coronoid process of the mandible. There is usually some pain in mastication, because of proximity to the insertion of the masseter muscle, and on contraction of the masseter muscle. When the zygoma is fractured, this occurs almost at once due to the insertion of the masseter muscle to the arch; mobility of the bone and crepitus can be detected by grasping the zygomatic arch on the inferior margin and rocking the bone. If there is a line or crack, no crepitus will be felt. Cracks and separations extending into the orbit may be palpable, or the overlapping displacement of the malar bone on the superior maxilla may form a definite palpable ridge.

#### COMPLICATIONS

Because of its proximity to the zygomatic maxillary suture, and due to the additional fact that it runs along the flow of the orbit in the infra-orbital canal, the infra-orbital nerve is often pinched or lacerated and gives rise to pain, tingling and anesthesia in the face, lip and teeth corresponding to the nerve distribution. This also holds true for the superior maxillary nerve, which is less frequently involved.

If the superior maxilla is involved, the maxillary sinus may be opened, with or without epistaxis of the affected side. If the nose is already infected, a suppurative maxillary sinusitis will ensue.

#### CASE REPORT NO. 1

Mrs. A., aged 43, was injured in an automobile accident on February 21, 1937, and lost consciousness. She had a lacerated wound of right side of face, involving the right ear.

X-ray on March 16, 1937, showed: Fracture composed of a large fragment of bone, involving the outer half of the antrum, and the other end detached from the malar bone. The fragment is displaced downward and inward.

She was admitted to the hospital on March 12, 1937, and three days later, under general anesthesia, a long curved needle was passed through the temple and cheek under the arch of the zygoma, passing a silver wire under the bone, and with this traction was exerted on the arch in an attempt to correct the depression, but was unsuccessful because of the great amount of callus. The wounds were reopened and resutured to obtain a better plastic result.

The upper eyelid was ptosed, and the external canthus had been cut through. There was closure of the jaw, and the patient was unable to take anything but liquids. This was due to the impingement of the zygomatic arch on the coronoid.

After the unsuccessful closed method of reduction was tried on March 16, 1937, the open method was tried. Under ethylene ether, a transverse incision was made over the zygomatic arch near the ear, and dissection carried down until the fragments were exposed. After considerable manipulations externally, and pressure within the mouth, it was possible to reduce the fragments almost to their normal anatomic position and the mandible regained its complete mobility.

This case presents almost all the complications that exist with fractures of the malar bone. There was diplopia, which is still present, but which the patient has learned to disregard.

The antrum did not become infected, and it was left alone. Plastic work had to be done to restore the lids, but there is still some slight deformity.

#### CASE REPORT NO. 2

Four days ago, on November 17, 1935, the patient was struck on left side of face by a piece of iron (propeller shaft on a boat). He was knocked unconscious for five hours. The left eye was completely closed, the left nostril was bleeding, and he had severe headache for two days. There was ecchymosis and swelling of both lids of the left eye. The eye itself was uninjured and vision normal. The left malar bone and antrum were depressed inwards, the left orbit on the inferior surface was uneven, and the fracture could be felt.

X-ray showed a comminuted fracture of the floor of the left orbit and malar bone with downward and backward displacement, with hemorrhage in the left antrum.

#### CASE REPORT NO. 3

A. W., aged 45, was injured in automobile accident. The left side of the face was swollen and there was a depression of the malar bone and antrum. There was a laceration of the left side of face, and left eye was closed due to swelling.

X-ray report: Multiple fractures of the left malar bone; fracture of the lower portion of the superior maxilla and the floor of the left orbit. There is considerable hemorrhage present in the left antrum. Multiple bird shot seen in the region examined. (This is not due to the injury, but a previous injury).

#### CASE REPORT NO. 4

A. A., aged 22, was struck in right eye with a fist. The eye was almost closed due to the swell-

ing of the lids; slight conjunctival hemorrhage; the eye itself was uninjured. X-ray showed fracture of the malar bone and lower rim of the orbit without displacement; right antrum is cloudy; transillumination showed right antrum dark. This case was left alone as there was no displacement.

#### COMPLICATIONS OF MALAR AND ZYGOMATIC FRACTURES

##### 1. Eye:

- (a) Eyelids swollen and edematous. Later ptosis.
- (b) Conjunctival and subconjunctival hemorrhage (usually of no importance).
- (c) Injuries to the globe itself.
- (d) Injuries to the eye muscles either direct, or due to hemorrhage behind the globe, displacing the eye upwards. This always results in diplopia, which may be either transient or permanent.

2. Nose: The antrum is nearly always involved by hemorrhage. This absorbs as a rule without difficulty unless it becomes infected, and then the antrum must be drained.

Fractures of the orbit may extend into the ethmoid or frontal sinuses with resulting meningitis or brain abscess. These are the fatal complications.

The fragments may prevent motion of the lower jaw due to mechanical pressure on the coronoid process of the mandible.

#### SUMMARY

Fractures of the malar bone and zygoma have increased in the last few years. Text books of surgery give too meager and incomplete details of their care and complications. They are usually associated with fractures of other bones of the skull, and it is for this reason that the collaboration of the surgeon with the otorhinologist is not only advisable, but by working together the best interests of the patient are conserved.

#### DISCUSSION

Dr. C. E. Gorman (New Orleans): Someone has said that common sense is the most uncommon thing in the world. The treatment of fractures, however, calls for the greatest exercise of this rare talent. John B. Deaver once said that the surgeon of 25 years' experience had passed through the specialty stage for he had treated nearly all conditions labeled surgical, a large part of which at the present time are distributed to specialists. The recognition of a fracture of the

malar bone and zygoma 25 years ago was extremely difficult. The x-ray plates were obscure and imperfect, thus yielding inaccurate information. Often the fractures could not be seen on the plates. Very rarely was the diagnosis made of fracture of these bones even when, by inspection, definite flattening could be observed. The first recorded observations of my own personal experience were about 24 years ago. The patient had a definite fracture of the zygomatic arch. Having been on the service of Dr. Rudolph Matas and having seen him use the Hagedorn needle in most of his work,—I followed the suggestion of Dr. Matas of passing a full curved Hagedorn needle, threaded with silver wire, through the sterilized skin and under the zygomatic arch, pulling it out on the opposite side. This gave a sling under the bone fragments. Using Ochsner forceps to grasp the wire and someone to steady the head, a great deal of force and traction can be applied to the fragments if necessary. Usually they slip into place very easily and with a "snap" that is audible. Occasionally a patient will procrastinate before applying for treatment since the deformity is not always noticeable, due to the swelling and edema of the area. In these cases the technic is always rendered more complicated and difficult dependent upon the amount of callus formation present.

It is always preferable to perform a closed operation if possible. In lieu of the needle and wire it is sometimes possible to use a cervical tenaculum to grasp the fragment and pull it into place. Other instruments useful in this type of closed treatment are Smith hooks, a single tenaculum or two single tenacula inserted from above downward through the lower orbital rim and about one inch apart, pulling on both at the same time, or a specially constructed corkscrew. The Smith hook is used to grasp the fractured segment and similarly the tenaculum forcep. The curved sharp steel hook is forced through the skin and under the fragments. The corkscrew is particularly applicable to malar fractures where it is impossible to get underneath the fragment. The screw part is bored through the skin and into the bone, thus giving the proper traction.

When the closed methods fail then it is necessary to perform the open operation. A small incision is made in the creases of the skin in order to leave as little scarring as possible. Usually it is an easy matter then to pull up the fragments. Ivy and Curtis, in their books on fractures of the jaw, describe Gillies technic of treating zygoma fractures. He makes an incision at the hair line, through the temporal muscle and a flat instrument is passed under the zygoma using the temporal bone as a fulcrum. The bone is easily forced into place. When the orbital rim is depressed, the incision should be made over the depressed bone.

Ivy and Curtis also describe a hooked screw which is used through a small incision. This is particularly valuable where it is necessary to retain the traction in order to keep the parts in proper opposition. These screws are also valuable in comminuted fractures.

Dr. Meyer has mentioned in his paper the complications following this type of fracture. The most serious of these is when the fragment has injured vessels or nerves, compresses the orbital fossa or impinges on the coronoid process or the condyle of the mandible, interfering with speech and mastication. In the case of Mrs. A., case one of Dr. Meyer's paper, this later condition was quite an important and serious complication since she could not open her mouth and could take only liquid nourishment. It was necessary in this instance to perform an open operation and manipulate the impinging fragments in order to secure correct approximation. Mobility of the mandible was restored promptly.

The underlying principles in the treatment of fractures are paramount here, i. e. reduction of the fracture and immobilization, although complicated measures or immobilization are seldom necessary, for the fractured surfaces usually remain in position after reduction. I would like to stress especially that the treatment of these fractures has been simplified in recent years by advancement in x-ray technic, the improvement in x-ray equipment and the expert assistance of the roentgenologist and the otorhinolaryngologist.

Dr. Waldemar R. Metz (New Orleans): The importance of fractures of the malar zygomatic compound is best testified to by the complications which we frequently run into and which Dr. Meyer has so well described. Unfortunately fractures of the malar bones are the most neglected of all fractures we are called to see and as he has told you, in most text books, there is just meager references made to the fracture with a cursory mention of adequate means of reduction. Dr. Gorman has told you of different types of methods and instead of the tenaculum he mentioned, with the cow horn type of forceps more pressure and grip to the malar bone is possible. I have recently had very satisfactory experience in two cases with the Gillies-Kilner elevator method of approach. This past summer in England I had the opportunity to see Mr. McAdoo, associated with Gillies, operate on several cases with splendid results. It is a simple method and has a great many advantages, I think, over the other methods used, which leave a visible scar where the wire is inserted and where reduction is attempted. This is not the case when using the Gillies-Kilner method.

The complications, of course, are things which are difficult to deal with, particularly after a long period of time. Infra-orbital pain is a com-

mon occurrence. The malar bone, as you know, is a solid, strong bone on very fragile supports. The bone itself is fractured rarely, though its supports are.

I think you can visualize better with this lantern slide the Gillies-Kilner method which Dr. Gorman mentioned. The incision is well within the hairline in the temporal region; it is a small incision usually an inch and a half in length. The hair is shaved in the preoperative preparation. The incision is carried down to the temporal fascia which is incised. The elevator is now passed downward on the temporal muscle and passes under the zygomatic arch—a pad of gauze is placed on the head under the elevator and forceful pressure on the elevator levers the bone back into position. Immobilization is secured by a pad under the malar bone but as a matter of fact little splinting is necessary since these fractures, once reduced, have no tendency to recur. The scar in the hair line is invisible and the operation is accomplished in a few minutes. This applies, of course, to recent fractures. In old fractures it is more difficult and sometimes it is impossible to reduce except by open and radical procedures.

Dr. Monte F. Meyer (In conclusion): This Gillies operation is a classic. In looking up the literature, I found that everybody referred to it as never having been improved upon and as being as good today as the first time described.

I wish to extend my thanks to the J. T. Nix clinic for allowing me to use some of the material in this presentation.

## ANEURYSM OF THE SPLENIC ARTERY

REPORT OF A CASE, WITH SPECIAL REFERENCE TO CERTAIN AIDS IN THE DIAGNOSIS

JOSEPH G. PASTERNAK, M. D.

and

JAMES R. SHAW, M. D.

NEW ORLEANS

So often it is presumed that a certain lesion or disease is too rare to be considered in making a differential diagnosis. A number of cases of aneurysm of the splenic, hepatic and renal arteries are now on record and yet such a lesion would rarely be given consideration in an abdominal crisis.

An aneurysm of the splenic artery may produce symptoms of cholecystitis with or without cholelithiasis, peptic ulcer or chronic pancreatic disease. After the wall of the aneurysm begins to tear, and whether this

is gradual or abrupt, symptoms of acute abdomen develop. They may simulate renal colic, acute pancreatitis, intestinal obstruction, coronary thrombosis, perforated peptic ulcer or ruptured ectopic pregnancy.

Of the 90 reported clinical cases of aneurysm of the splenic artery, only 18 received the benefit of operation with the saving of 12 lives. To date a preoperative diagnosis is recorded in only four cases. The lesion is so grave, that if even a reasonable suspicion is entertained, instant laparotomy should be performed, for operation offers the only hope of saving life.

The following case presented certain symptoms of ruptured aneurysm of the splenic artery. Unfortunately they were not recognized and the patient died of an exsanguinating hemorrhage into the abdomen.

### CASE REPORT

P. R., a white, Spanish War veteran, aged 60, entered the hospital November 27, 1938, complaining of severe pain in the right upper abdomen. He stated that two days previously he had vomited a small quantity of fresh blood. Several hours following this, he was awakened by a sudden, severe lancinating pain in the left lower chest. Within two hours the pain gradually disappeared from his chest, and a persistent, dull, aching pain developed in the right upper quadrant of the abdomen, that radiated down to "McBurney's point" and posteriorly into the right kidney region. This pain persisted without remission until he entered the hospital.

On examination the patient appeared sick and worried. The temperature was 37.4° C. pulse 80, respiration 22 and blood pressure 100/68. The heart and lungs were normal; arteries were moderately sclerosed. The abdomen was moderately distended and tympanitic. There was moderate spasticity and tenderness in the right upper quadrant that extended down as far as the umbilicus. There was moderate pain and tenderness on deep percussion over the right kidney. Liver and spleen were not palpable. Auscultation disclosed only active peristalsis.

White blood count was 12,200 to 13,325; polymorphonuclears 77 to 72 per cent; red blood cells 3,560,000; hemoglobin 80 per cent (Sahli). Stool examination was negative for occult blood. Urine contained a trace of albumin and a moderate quantity of blood. Intravenous urograms, retrograde pyelograms and cystoscopy revealed normal kidneys, hemorrhagic areas in the prostate and grade III trilobar, intraurethral prostatic hypertrophy. Cultures of kidney and bladder urine were negative.

Roentgenograms revealed normal stomach and duodenum; hypermotility and irritability of the colon; non-functioning gallbladder without stones; widened aorta; elevation of left diaphragm with costophrenic diaphragmatic adhesions and thickened pleura on the left.

A tentative diagnosis of acute cholecystitis was made and the patient was treated expectantly. After four days, the abdominal distention, pain and tenderness markedly decreased.

At 10:30 a. m. December 11, 1938, the patient was suddenly seized with a severe, lancinating pain in the low precordial region. He immediately collapsed, became pulseless, was covered with cold perspiration, and exhibited all the signs of acute shock. Heart sounds were poorly audible. The abdomen was soft and doughy, where before it had been slightly rigid and distended. Auscultation of the abdomen was negative. Oxygen, morphine sulphate gr. 1/4 and 50 per cent glucose intravenously were administered at once and repeated every four hours without improvement. The apex pulse and respirations gradually increased. The patient died at 1:45 a. m. on December 12, 1938, with a clinical diagnosis of coronary occlusion.

#### *Pathologic Examination*

Gross findings: The general examination disclosed no significant abnormalities. The right adominal trough was filled with old and recent blood clot and blood tinged serum. The clot weighed 950 grams and the free fluid measured 700 c.c. A hemorrhagic, roughly ovoid tumor 7 cm. in length and 5 cm. in its greatest diameter was present along the proximal extremity of the lesser curvature of the stomach. Separation of the hemorrhagic adipose tissue that surrounded the mass and fixed it to the stomach disclosed it to be continuous with the splenic artery.

The abdominal aorta showed numerous foci of early and advanced atheromatous degeneration particularly along and between the intercostal arteries and at the celiac axis. The celiac artery was of ordinary caliber. Its wall was thick and stiff, and upon being opened showed stretches of intimal sclerosis with an occasional fleck of atheroma. The splenic artery was obviously much larger in caliber than the celiac artery, progressively increasing from 8 mm. to 2 cm. in diameter in the course of 4 cm. of its length from its origin. The vessel wall was considerably thickened. The first 2 cm. could be collapsed; the last 2 cm. formed a solid cord. The artery abruptly became lost in an egg-shaped hemorrhagic mass of adipose tissue that was inseparably fused with the posterior wall of the stomach along the proximal part of the lesser curvature. From this mass the artery emerged as a stiff cord 15 mm. in diameter that rapidly tapered off into ordinary splenic artery.

After dissecting away the adipose tissue the nature of the mass became evident. It was an

aneurysm of the splenic artery. The mass was firm and presented a hemorrhagic appearance. It was 5 cm. in diameter and 7 cm. in length. Its posterior inferior part was largely torn away as a result of hemorrhage. The opened mass showed the wall of the aneurysm to consist largely of hemorrhagic granulation and scar tissue upon which deposits of recent blood clot were present. The extremities of the mass were thrombosed and thrombus extended into the splenic artery at both ends. The wall of the proximal segment of the thrombosed splenic artery averaged 4 to 5 mm. in thickness and the wall of the distal segment averaged 3 mm. in thickness. The aneurysm was inseparably fused with the wall of the stomach.

A moderate degree of generalized arteriosclerosis was present.

#### *Microscopic Findings*

##### *Splenic Artery:*

1. *Near origin:* Irregular subintimal fibrosis is present. The internal elastica is thick and shows extensive undulations. The media shows an irregular, slight to moderate overgrowth of fibrous tissue. The adventitia shows old and recent fibrous thickening and capillary vascularization.

2. *Proximal thrombosed segment:* The lumen is practically filled by a thrombus of coagulated meshed fibrin in which dense collections of polymorphonuclear leukocytes and red blood cells are present. The thrombus is inseparably fused with the vessel wall for about one-third of its circumference. Along this stretch the intima and adjacent media show advanced thrombonecrosis, hemorrhagic dissection, and disruption, and sparse to moderate infiltration by degenerating polymorphonuclear leukocytes. The remainder of the artery shows subintimal fibrohyalin thickening, swelling, and splitting of the elastica and irregular fibrosis of the media. The adventitia shows old fibrous and fibroblastic overgrowth, capillary vascularization and foci of sparse diffuse lymphocyte infiltration. The vasa vasorum are not significantly altered.

3. *Aneurysm:* The wall consists largely of thrombonecrotic tissue that is continuous with the contained thrombus. A thin retaining wall of vascular, hemorrhagic, fibrosing granulation tissue and inflamed adipose tissue is present. The infiltrating cells consist only of lymphocytes. A diffuse overgrowth of fibrosing granulation tissue forms the union of aneurysm with stomach. The mucosa of the stomach per se, and the muscularis show no lesions.

In various sections through the aneurysm an occasional torn fragment of fibrohyalinized intima and adjacent more or less sclerosed media are identified.

4. *Distal thrombosed segment:* The thrombus in this segment, is smaller than that in the proximal one. Also, it is adhered only along one-fourth the

circumference of the vessel. This stretch shows thrombonecrosis and hemorrhagic disorganization of the intima and media and beginning granulation tissue ingrowth into the necrosed wall. The reaction in the adventitia is essentially like that in the proximal segment.

#### DISCUSSION

The splenic artery shows more natural predisposition to aneurysm formation than any artery in the body. In youth its course is relatively straight. Because it is rather freely suspended and poorly supported or fixed, it becomes intensely tortuous and its growth in length practically does not cease until death. It usually shows ectasia, distortion and atherosclerosis in patients over 45 years of age. Advanced atheromatous changes and Mönckeberg type of calcification is rather frequent after the 50th year of life.<sup>1</sup> Corresponding changes in other arteries may be absent or only slight.

In most of the reported cases there was no specific cause for the aneurysm. However, in the majority the wall of the aneurysm showed degenerative changes, atherosclerosis and calcification, indicating that the lesion was fundamentally a retrograde one rather than inflammatory. The lesions varied in size from small saccular dilations to immense abdominal tumors. They have been reported in patients between the ages of 14 and 70 years. The sexes are about equally divided.

#### DIAGNOSIS

Ortner<sup>2</sup> made a diagnosis of aneurysm of the splenic artery on the basis of a large spleen and a grating systolic murmur, of maximum intensity midway between the splenic hilus and the midline of the body. His diagnosis was verified at autopsy.

In a number of the reported cases there was a splenic tumor of undetermined etiology. Compression of the splenic vein by the aneurysm, producing chronic passive congestion of the spleen, was demonstrated in some of the cases.

Högler<sup>3</sup> was the first to make a preoperative diagnosis. This was based on the presence of a pulsating tumor of increasing size in the left hypochondrium. It produced a loud systolic murmur. X-ray examination

disclosed an oval shadow 3 x 1.5 cm. in diameter at the left of third lumbar vertebra. The margin was more densely calcified than the interior. The symptoms in this case were confusing because of the concomitant presence of a pancreatic cancer.

Lindboe<sup>4</sup> made a diagnosis of aneurysm of the splenic artery entirely from the roentgenogram. His patient, a 53 year old woman, complained of digestive disturbances, poor appetite, vomiting and loss of weight. In the roentgenogram, 1 cm. to the left of the spinal column at the level of the 11th interspace, there was a calcified patch somewhat larger than a "half penny." It presented a sharp, dense, continuous calcified margin with a small lateral opening. The interior was less dense than the margin. The spleen and aneurysm were removed at operation and the patient made a good recovery. The specimen showed a calcified aneurysm 2.5 x 2 x 2 cm. about 2 cm. from the origin of the splenic artery.

The importance of the x-ray in the diagnosis of aneurysm of the splenic artery is thus clearly demonstrated. Haffner's<sup>5</sup> case also proves this. His patient, a female 51 years of age, had vague digestive disturbances over a period of ten years. In the last three years her trouble had become worse. She experienced troublesome pressure and irritability in the epigastrium, and occasionally colicky pains in the left hypochondrium. She felt worse when up, and relieved when at rest in bed. She had lost considerable weight. The physical examination disclosed nothing else significant. The spleen was not palpable and there was no evidence of arteriosclerosis. Fluoroscopic examination showed a ptosed but otherwise normal stomach and duodenal bulb. Somewhat lateral and behind the upper part of the stomach, at level of the second lumbar vertebra, was an elongated walnut sized, calcified shadow. It was independent of the stomach and moved very freely with respiration. The roentgenogram showed an ovoid, walnut sized, calcified shadow with a sharp outer outline and thick but irregular shell in contrast to the less dense interior, at the level of the first



lumbar vertebra 5.5 cm. to the left of the spinal column. The calcified mass was somewhat medial to the spleen. Intravenous pyelography proved the mass to be entirely independent of the kidney and its position directly lateral over the upper pole. The spleen and aneurysm were removed. Where the splenic artery divides into three branches at the hilus, a saccular aneurysm 2 x 2 x 1.6 cm. was formed. The aneurysm was partly filled with calcified material. The wall was largely calcified and in places extremely thin. The spleen was of ordinary size and showed no pathologic alteration.

Säfwenbergs<sup>6</sup> made a diagnosis in two cases, and Fuchs<sup>7</sup> in one case, entirely from roentgenograms.

The roentgenographic findings however, are not always characteristic. Key and Akerlund<sup>8</sup> interpreted their case to be a stone in the renal pelvis or within the kidney substance. At operation a calcified aneurysm of the splenic artery was found.

Brockman's<sup>9</sup> case presented symptoms of acute intestinal obstruction. Auscultation disclosed the bruit of an aneurysm in the left hypochondrium. After a careful examination he concluded that it must be an aneurysm of the splenic artery which had ruptured. Before operation he wavered and changed his diagnosis to acute intestinal obstruction. At operation he found a ruptured aneurysm of the splenic artery.

Parson's<sup>10</sup> case is instructive. He operated for perforated gastric ulcer. A ruptured aneurysm of the middle third of the splenic artery was found. The artery was ligated proximal to the aneurysm and removed with the spleen and its pedicle. Fifteen months later the patient complained of flatulence and dull aching pain in the left hypochondrium. Eight months after this (22 months after the first operation) the patient developed signs and symptoms suggesting "ruptured ectopic pregnancy in the female." Exploration disclosed furious arterial bleeding from an aneurysm of the splenic artery. The aneurysmal sac appeared to lead directly off the aorta. The cavity was packed and the wound closed. The patient died. At autopsy, an aneurysm of the remainder

of the splenic artery was found adhered to the mid-portion of the lesser curvature of the stomach.

Osborne's<sup>11</sup> case presented signs and symptoms typical of cholecystitis with cholelithiasis. The roentgenogram of the gallbladder was "normal." At operation there were a few adhesions around the gallbladder and no stones. A whitish-grey round tumor the size of a "tangerine" was found lying in the gastrophepatic omentum along the lesser curvature of the stomach. The wall was calcified and crackled. Pulsation could be neither seen nor felt. The tumor was thought to be a pancreatic cyst, and was incised. A forceful pulsating stream of blood escaped. The position of the aneurysm was such that removal was impossible. The patient died of sudden secondary hemorrhage on the tenth day. The spleen was three times normal in size and weight. The splenic artery was tortuous. The aorta showed no atheromatous changes.

The case of Lower and Farrell,<sup>12</sup> a boy of 16 years, had paroxysmal attacks of severe abdominal pain. After thorough examination a tentative diagnosis of chronic pancreatitis was made. Laparotomy disclosed a solid tumor mass attached to the pancreas and adhered to the jejunum. Aspiration of the mass yielded nothing. The tail of the pancreas had to be removed with the mass. The tumor turned out to be a clotted saccular aneurysm of the splenic artery. The stomach and bowel showed no gross pathologic changes.

The literature contains six reports of ruptured aneurysm of the splenic artery and one of the splenic vein in women in the second half of pregnancy. In these cases, the pain in the epigastrium and signs of hemorrhage were presumed to be due to separation of the placenta or to ruptured ectopic pregnancy. One patient was operated on for spontaneous rupture of the uterus.

From the foregoing, it is evident that the clinical symptoms of aneurysm of the splenic artery are not pathognomonic. The predominant subjective symptoms were digestive disturbances; flatulence; paroxysms

of colicky pain in the epigastrium or left hypochondrium; from time to time a feeling of weakness or faintness. In a number of cases vomiting was present, and in a few hematemesis, melena or both due to erosion of the aneurysm into the bowel wall, although in some cases this was not demonstrable at autopsy. Loss of weight was frequently recorded. In some cases the history dated years back. In many cases there were no symptoms until rupture occurred. Accentuation of symptoms and alteration of the intensity of the pain with posture and exertion, and relief with bed rest is regarded as peculiar to this type of vascular lesion.

Several cases, notably those of Anderson and Gray,<sup>13</sup> Brockman<sup>8</sup> and our own, disclosed an important fact which, if recognized, may save the life of the patient. Rupture frequently occurs in two stages. There is hemorrhagic tearing or erosion of the aneurysm with escape of blood into the surrounding tissues or splenic pedicle, or primary rupture with hemorrhage into the lesser peritoneal cavity, stomach or bowel. This is not usually fatal, since clotting occurs in a short time. Diagnosis and operation in this phase is important for, after a number of hours and occasionally after one, two or three weeks, secondary rupture occurs and an exsanguinating fatal hemorrhage follows.

The symptoms of the first stage are those of acute abdomen and may simulate any of the conditions already mentioned. Intense agonizing pain of sudden onset is felt in the left side of the abdomen, or epigastrium and referred to the precordium. It may be accomplished by persistent vomiting. Shock, with signs and symptoms of internal hemor-

rhage remarkably like those of ruptured ectopic pregnancy, is present. Immediate operation is indicated. Unless the source of hemorrhage is thoroughly investigated at exploration, it may be missed as it was by Anderson and Gray, only to result fatally later. Accurate hemostasis is essential. Death occurred in all cases in which a tampon was used. Removal of the aneurysm with the spleen gives the best results.

#### SUMMARY

A case of ruptured aneurysm of the splenic artery is described. Rupture often occurs in two stages. If the first stage is recognized or suspected and the patient is operated on, his life may be saved. The x-ray may be an important adjunct in the diagnosis.

#### REFERENCES

1. Thiersch, Hans: Beitrag zur Pathologie der Arteria Lienalis, Beitr. z. path. Anat. u. z. allg. Path., 96:147, 1935-1936.
2. Ortner, N.: Discussion of Högler's paper, Wien. Arch. f. inn. Med., 2:185, 1921.
3. Högler, Franz.: Beitrag zur Klinik des Leber- und Milzarterienaneurysmas, Wien. Arch. f. inn. Med., 1:509, 1920.
4. Lindboe, E. F.: Aneurysm of the splenic artery disclosed by x-rays and operated upon with success., Acta chir. Scandinav., 72:108, 1932.
5. Haffner, Johan.: Fall von verkalktem Aneurysma der Art. lienalis, Acta Radiol., 17:602, 1936.
6. Säfwenbergh, Olof.: Zwei Röntgenologische Diagnostizierte Fälle von Milzarterienaneurysma, Acta Radiol., 18:481, 1937.
7. Fuchs, Georg.: Das Röntgenbild des Aneurysmas der Arteria lienalis, Röntgenpraxis, 9:467, 1937.
8. Key, Einar and Akerlund, Ake.: Fall von verkalktem Aneurysma in der Arteria renalis, Fortschr. a. d. Geb. d. Röntgenstrahlen, 25:551, 1917-1918.
9. Brockman, R. St. Leger: Aneurysm of the splenic artery, Brit. J. Surg., 17:692, 1930.
10. Parson, Clifford: A case of ruptured aneurysm of the splenic artery with recurrence, Brit. J. Surg., 24:708, 1937.
11. Osborne, S. E.: Aneurysm of the splenic artery simulating cholecystitis, Lancet, 1:1007, 1936.
12. Lower, Wm. E. and Farrell, James I.: Aneurysm of the splenic artery, Arch. Surg., 23:182, 1931.
13. Anderson, Wm. and Gray, John: Report of a case of aneurysm of the splenic artery, Brit. J. Surg., 17:692, 1930.

# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Acting Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D., Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

G. C. Anderson, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*  
1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

---

## MEDICAL ECONOMICS

The American Medical Association, through its Bureau of Medical Economics, has recently published two brochures which should be of immense interest to those who are concerned, as most physicians are, with the changing trend of medical

practice. The first of these books, "Organized Payments for Medical Services," discusses thoroughly and completely the care that is being given, first, to the indigent sick, and second, to those who are below a certain income level. Particularly interesting is the chapter which has to do with medical arrangements organized by medical societies. The principles of the plans for medical services that are working now, or have been proposed, which are postpayment or prepayment in character and sponsored by medical societies and other organizations, indicate very definitely the desire of many to cooperate in finding a solution for local medical problems. The one hundred and eighty-two pages of this book are packed with extremely valuable information which should be read by all those who are representative of the parish, county or state medical societies, and show them what has been accomplished, satisfactorily in some instances, poorly in others, by the so-called group methods of insurance payment.

"Factual Data," a pamphlet of some sixty-seven pages, should be studied by every thinking physician. Furthermore, it might be an excellent thing to leave this bulletin, teeming with facts, on your office table so that the waiting patients might see that there are adequate hospital beds in this country for the sick; that the United States exceeds all other countries in the number of physicians per unit population and, consequently there are enough physicians to take care of the population as a whole; that the death rate in this country compares favorably with that of every other nation in the world, except Australia and New Zealand; that diphtheria, nephritis, pulmonary tuberculosis and typhoid fever are diminishing diseases, while the incidence of heart disease, cancer, diabetes and appendicitis is on the increase; that maternal mortality is declining rapidly, as is infant mortality. In fact, there are so many informative diagrams, charts, tables and statements that the person can get some of this information in a few minutes by looking at the charts; or, has he more time to study the information regarding the

charts, he will realize that the medical profession is going ahead actively and seriously.

---

o

---

### ROENTGEN DIAGNOSIS

---

The diagnosis of disease by means of the x-rays is becoming increasingly more common, largely because of the improvements that have taken place in the methods of examination, the development of new equipment and the increased skill of the roentgenologist in correlating the living roentgenogram with the postmortem findings. A review on diagnostic roentgenology recently published will serve as a medium to point out some of the more recent changes and more recent developments in diagnosis by means of the roentgen ray.

The author\* of this review says in reference to the heart that within the last year successful results have been published indicating that it is now possible to obtain radiographic pictures of the superior vena cava and its tributaries, the four heart chambers, the walls of the ventricle, the interventricular septum, the several valves, the pulmonic and aortic sinuses, pulmonary arteries and thoracic aorta. This is accomplished by the use of diodrast. When this method becomes generally available for clinical use it will be of immense value in differentiating rheumatic and congenital heart lesions, in differentiating mediastinal tumors and aneurysms and the determination of the causes of obstruction in the upper mediastinum. In so far as pulmonary diagnosis is concerned this field has broadened very widely in the last few years. It is possible now to determine, for example, the cause of bronchial obstruction. It is possible to visualize pulmonary embolism without infarction. The activity of a tuberculous lesion is readily recognized and fewer abnormal chest plates are labeled pulmonary tuberculosis as a result of observations that have been made by the roentgenologist concerning other pathologic lesions within the thoracic cavity.

Roentgenology of the gastrointestinal tract within the last decade has become exceedingly exact and has grown with great

strides. It has been only within the last several comparatively few years that it has been possible to demonstrate esophageal varices and consequently the diagnosis of cirrhosis of the liver. The differentiation of the splenomegalies has been markedly improved. Small lesions of the stomach are discovered with ease and it is possible to differentiate between an ulceration and the cicatricial processes brought about by ulcer, in other words the roentgenologist in many instances can now decide whether or not an ulcer is active. Changes that take place in gastritis are discoverable as result of the new barium technic. The claim is made that ulcerative lesions due to early malignancy can be recognized in most instances roentgenologically. The x-ray examination of the gallbladder is by no means unequivocal but the number of errors is decreasing as result of new technical and methodical developments, as for example the examination of the dye-filled gallbladder with the patient standing upright.

The spinal canal is no longer roentgenologically an unexplored field. For some years lipiodol has been used most successfully to bring out lesions of the spinal canal and nowadays the canal is studied fluoroscopically as well as by means of a flat plate. Gas has been advocated by two investigators who have suggested that inasmuch as lipiodol, while apparently inert, still remains in the spinal canal, this substance should be used first because many lesions can be demonstrated after it has been injected into the spinal canal. Encephalography and ventriculography are called upon when the flat films are unsuccessful in localizing or even in showing the presence of neoplastic growth.

There have been many other advances in the use of the x-ray in conditions which are rarely observed clinically; for example placenta previa may be diagnosed in certain instances. It is possible to visualize soft tissue tumors, particularly by the intrafascial injection of air. Contrast demonstration of liver and spleen is not frequently employed but it may be used under exceptional circumstances. Kymography and body-section roentgenography, moving pic-

tures and photography of the fluoroscopic screen represent methods which are gradually being refined and which will be of clinical value.

Roentgenology is growing rapidly in its usefulness. Roentgenologists, physicists and clinicians are all helping to advance this science to a point where it has become practically invaluable in the diagnosis of many diseases and disorders of the human body.

---

\*Schatski, R.: Diagnostic roentgenology, New England J. Med., 220:747, 1939.

---

### MEDICAL IDEALS

---

The medical profession has always felt that the interest of the patient is the first and paramount factor in the handling of disease. It has always believed that the high standards of education must be upheld for those who presume to treat the sick and the injured. It has always insisted that the study of disease, methods of controlling disease, of learning about disease should be given to the profession

through its publications. The doctor discovers a way of curing disease and the news is spread widely without any thought in the mind of the discoverer of obtaining monetary returns. A new operation is devised or a new instrument is made, but the new operation or the new instrument is gladly offered to the profession without check or limitation. Doctors have fought unselfishly for generations against disease and it is due to their efforts that life expectancy has been so markedly increased, that so many diseases have become conquerable.

Were the physician to turn the leadership of his profession over to social experimenters and bureaucrats, the ideals of the profession undoubtedly would gradually taper off until within the course of a generation or two all that this great profession of medicine stands for would be lost. The doctor would become more or less of a robot and the profession with the highest professional standards and ideals would degenerate purely and solely into a business or a money making occupation.

---

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### HUTCHINSON MEMORIAL CLINIC

#### New Orleans

Scientific Session conducted by the Division of Neurosurgery, Department of Surgery, Dr. Dean H. Echols presiding.

Dr. Echols: Tonight we are going to attempt something that may prove too ambitious, that is, a discussion of nearly all aspects of neurologic surgery. The list on the board includes most of the diseases which the neurosurgeon treats. The purpose of this talk is to call attention to the developments that are relatively recent. In many instances, there is nothing new to be said.

#### TIC DOULOUREUX

The first disease on the list is tic douloureux. Because it is the custom at these meetings to present patients whenever possible, I have asked a few of them to come tonight.

#### Case Number 1

Dr. Echols: Mrs. R., when did you first have the pain in your face?

Mrs. R.: About four years ago.

Dr. Echols: For four years she suffered with tic douloureux in the third division of the nerve on the left side. This was characterized by severe shooting pains which she described as excruciating. How long did they usually last?

Mrs. R.: They would come and go, sometimes lasting only one or two seconds.

Dr. Echols: If the pain of tic douloureux lasted five minutes, everyone who had it would jump out of the window. It usually lasts for a few seconds only. There may be a series of attacks in quick succession. Mrs. R. came to the Clinic on September 17, 1937 when she was more or less at her wits' end, and I advised the operation, that is, intracranial section of the fifth nerve, which is a certain cure. Like most people, she hesitated to have a surgical operation and persuaded me to inject the nerve with alcohol. I am mentioning that because it is the point I want to bring out about tic douloureux. I told her before I injected the nerve that it was not a cure, that it might stop the pain for a few months, but that some day it would return and she would have to have the

operation. The third division of the fifth nerve was then injected with alcohol (95 per cent).

Dr. Echols: How long did the pain stay away?

Mrs. R.: About eighteen months.

Dr. Echols: The pain returned, but she still was not ready for the operation and persuaded me to inject the nerve again. How long was it then before you felt the pain?

Mrs. R.: Not so long—only a few weeks.

Dr. Echols: That is the story of alcohol injections. The first one is usually the good one; the second one is less effective, and so on. The alcohol produces scar tissue which interferes with subsequent injections. She was then willing to have the operation, and this was done under local anesthesia. A few of the sensory fibers were cut central to the ganglion. This has cured the disease and has made only the lower part of the face anesthetic.

#### Case Number 2

Dr. Echols: Mrs. H., how many years did you have the pain in your face?

Mrs. H.: Nearly seven years.

Dr. Echols: What part of your face?

Mrs. H.: The whole left side.

Dr. Echols: Her pain was in all three divisions of the fifth nerve. Was it a bad pain?

Mrs. H.: I guess it was. I suffered terribly. I could not drink water without a tube.

Dr. Echols: Did you have any injections?

Mrs. H.: I had one injection, but it did not stop the pain.

Dr. Echols: The standard operation was done. One-half of her face is now anesthetic but the pain is gone.

The point regarding tic douloureux which should be stressed is that there is only one proper treatment, that is, operative section of the fifth nerve intracranially. Alcohol injections and other forms of treatment are simply ways of procrastinating. Sooner or later the patient will have to have the operation. No one was ever cured of tic douloureux by any method which did not destroy the ganglion or interrupt the nerve pathway central to the ganglion. Spontaneous recovery does not occur.

#### DISCUSSION

Dr. Golden: I remember Dr. Carmichael's discussing trigeminal neuralgia. At the time it was thought that the transient facial paralysis sometimes seen after operation was due to traction on the petrosal nerve. Is that your view?

Dr. Echols: Yes. Traction on the greater superficial petrosal nerve may cause temporary paralysis. The surgeon should avoid this nerve. We have never had facial paralysis as a complication, but it might happen in the next patient.

Dr. Watters: In your experience, what division of the fifth nerve is most frequently involved in tic douloureux?

Dr. Echols: The middle division is more frequently involved than the third division. The first division is involved much less often.

Dr. Meade: Does it frequently start in one division and involve all of the divisions?

Dr. Echols: It is quite customary to have one division affected first and then spread. In the second patient it affected only one division at the time of onset six years ago. At the time we saw her it affected almost the whole face.

#### BRAIN TUMOR

##### Case Number 3

The next subject is brain tumor. Miss U. was kind enough to come over from Mississippi for this meeting. She was admitted to the Clinic on November 2, 1938. Dr. Mahorner called my attention to her. I think she was sent down with a tentative diagnosis of goiter because of her exophthalmos. Miss U., of what did you complain? Did you have attacks of headache?

Miss U.: Not so many. I had spells. I did not know what was wrong.

Dr. Echols: She had a type of convulsion—not grand mal, but very much like it, and choked disks. In regard to the diagnosis, it was quite obvious that the patient had a brain tumor, but the exact location of the tumor was by no means certain. Air injections showed it to be in the left frontal lobe. At operation, under local anesthesia, the frontal lobe with the cyst and tumor was excised. As you no doubt know, one can remove either frontal lobe without producing character or mental changes. The tumor proved to be an oligodendroglioma which is one of the most slowly growing of the gliomas. This patient is now well except for an occasional convulsive seizure.

##### Case Number 4

The next patient has a spastic right leg. For about three years Mr. A. has been having Jacksonian epilepsy. The attacks started in the right knee, his leg would begin jerking and it would spread up the right side of the body involving the arm and then the face. The face movements then stopped, then the arm, and finally, the leg. He has had dozens of such attacks. This tennis-ball sized meningioma which is being passed around was found to be compressing the left hemisphere. In spite of this large tumor this man did not have choked disks. His x-rays were normal; his spinal fluid pressure was normal; he never had any attacks of vomiting, he never had headaches. What becomes of the famous triad of headaches, choked disk, and vomiting? This patient did not have any of these symptoms. Those are the terminal signs of tumor. We should try to make a diagnosis of brain tumor early in the course of the disease. This patient's tumor was not diagnosed as early as it might have been. Even so his only complaints at the time of operation were the Jacksonian attacks and the weakness of one

leg. This meningioma was buried in the left side of the brain. It did not invade the brain, but was encapsulated.

Dr. Echols: Do you feel well now?

Mr. A.: Yes, except for slight pains in the side of my head.

Dr. Echols: I think that he has some adhesions to the dura; however, he is now cured of the Jacksonian attacks. He could not lift his leg off the floor before the operation, and he now has use of it.

#### DISCUSSION

Dr. Golden: What kind of spells did the girl with the glioma have?

Dr. Echols: Epileptic seizures with Jacksonian features. Since the operation she has lost consciousness only twice.

Dr. Levy: Will the patient who had the meningioma recover from the spasticity of the right leg?

Dr. Echols: I do not think so. I think that the pressure from the tumor partly destroyed the motor cortex. His leg is greatly improved, but I think he will always have a spastic gait.

#### GLOSSOPHARYNGEAL NEURALGIA

Glossopharyngeal neuralgia is a disease identical with tic douloureux of the fifth nerve except that it affects the ninth nerve. Instead of being in the face, the pain is in the throat. The disease is easily cured by intracranial section of the ninth nerve.

#### FRACTURE-DISLOCATION OF THE NECK

A few years ago it was customary to operate upon everyone with a broken neck to reduce pressure on the cord. It is not done any more except in rare cases. These patients can best be treated by skeletal traction. The miniature "ice tongs" which are being passed around the room are fastened to the skull and attached to a weight at the head of the bed. It will reduce any fracture-dislocation of the neck within a few hours. It is the ideal method. It can be put on in four minutes with the patient in bed. The old canvas head halter should be discarded because it does not reduce the dislocation, and it causes pressure sores under the chin and prevents the patient from opening his jaw to talk or eat. The new method is painless. The holes in the scalp are made with a knife—just stab wounds, and the shallow holes in the skull are made with a special drill which has a flange on it so that there is no danger of going too deep.

#### HYDROCEPHALUS

We shall pass on to the subject of hydrocephalus. It has always been a discouraging problem, and I present it simply to add a word of encouragement. Hydrocephalus is due to at least a dozen causes and to group them all into idiopathic hydrocephalus is nihilism. I shall pass this instru-

ment around for inspection. Certain types of hydrocephalus can be arrested by making an opening in the skull and pushing this instrument into the ventricle. There is an electric light bulb on the end of the instrument and two electrodes. One can find the choroid plexus and coagulate it. That will cut down the secretion of cerebrospinal fluid and keep the head from enlarging. Another point about hydrocephalus is the existence of a malformation called Arnold-Chiari. It was described a number of years ago but only within the last two or three years has anyone waked up to the fact that it is a cause of hydrocephalus. It is a congenital anomaly of the upper cord and medulla. It blocks the cerebro-fluid pathway at that point. The treatment of this condition is high cervical laminectomy which makes room for this malformation and the obstructive hydrocephalus is relieved. It should also be mentioned that some cases of hydrocephalus are due to tumors. We do not usually think of tumors as occurring in babies, but they are not infrequent. Many of the babies that have enlarged heads have no hydrocephalus; the big head is due to bilateral subdural hematomas. I have seen four cases of this. When a baby with hydrocephalus is seen, the physician should slip a needle through the fontanel just under the skull. If brown fluid pours out, it is a subdural hematoma. Clear fluid indicates hydrocephalus. That is the only way to differentiate the two.

#### DISCUSSION

Dr. Williamson: How soon should babies with hydrocephalus be referred to a neurosurgeon?

Dr. Echols: The earlier the better, so that diagnostic procedures may be carried out in a leisurely manner while the patient's general health is good.

#### SPINAL ABSCESS

Epidural spinal abscess is not a new disease, but it is little known. Within the last six months we have had two patients with boils who became paralyzed from the waist down. Each of these boys had an extradural abscess which compressed the spinal cord. It is certain that most patients with this disease are given a diagnosis of poliomyelitis. Careful clinical examination could prevent this error. Patients with epidural abscess have anesthesia below the level of the lesion as well as paralysis of the legs and bladder. The rapid appearance of such symptoms in a patient with an acute febrile illness should suggest the correct diagnosis.

#### DISCUSSION

Dr. Golden: We saw one patient recently at the hospital, but it was too late to operate because the transverse myelopathy was complete and had been present for several days. The usual erroneous diagnosis of poliomyelitis had been made.

Dr. Echols: Of course, it is necessary to make

the diagnosis before the cord is destroyed by pressure or vascular occlusion.

Dr. Watters: It is a pathetic situation if nothing is done. You can get good results from it, if tackled in time.

Dr. Echols: Occasionally an extradural abscess is secondary to other lesions, including osteomyelitis of the spine. In the first patient mentioned, the boils had disappeared two weeks before, and it was not until we asked and found the scars that we knew he had had them. The other patient, who was operated upon this week, had only a boil on his elbow. Movement of the elbow probably gave rise to the metastatic abscess in the spinal canal.

Dr. Meade: How about using spinal puncture?

Dr. Echols: If the sensory level is high on the trunk, one would feel free to do it. Incidentally, the absence of organisms in the spinal fluid and the positive Queckenstedt test verify the diagnosis of epidural abscess.

#### FURTHER REMARKS ON BRAIN TUMOR

At this point I am going to say a few more words about the brain tumor. Many physicians still feel that a brain tumor is a hopeless proposition so that I am saying a word in defense. In the first place, it is wrong to think of brain tumors as a single entity. Some are malignant and some are benign. Some invade the brain; others merely compress the brain. Gliomas which arise from the brain substance constitute only 42 per cent of brain tumors. There are about ten subvarieties of gliomas ranging from the benign to the malignant. The following is a partial list of the other types of brain tumor: papillomas, 0.6 per cent; meningiomas, 13.4 per cent; sarcomas, 0.7 per cent; pituitary adenomas, 17.7 per cent; acoustic neurinomas 8.7 per cent; craniopharyngiomas, 4.6 per cent; metastatic, 4.2 per cent; tumor of the skull, 1.0 per cent; tuberculomas, 1.6 per cent; gummas, 0.6 per cent; miscellaneous, 3.6 per cent; unclassified, 1.3 per cent.

To give you an idea of the result of surgery I will give you some statistics based on Cushing's large series. During the three year period from July, 1928, to July, 1931, he operated upon 412 patients with brain tumors which were histologically verified. Eighty-six and seven-tenths per cent of these patients left the hospital alive. I think you will agree that that is a low mortality. Now you may wish to ask what happened after they went home.

In 1936, Cairns, of London, a pupil of Cushing, had enough curiosity to come back to this country to look up the 157 patients he had helped Cushing operate upon during the year he was in Boston. He followed up every one of them. He found that 63 of them, ten years after the operation, were still alive. Of course, some of them were blind as they were before the operation, probably due to delayed diagnosis, and some of them were

subject to epilepsy. However, 37 of them were well and earning a living.

We will have a few more slides on brain tumor. In the old days it was a problem to know where the tumor was; that rarely occurs today, because air is introduced into the ventricles, and x-rays show the location and size of the tumor. This next slide is what a normal ventricle would look like. The others are tumor cases.

We have time left to cover a few more of the subjects listed, although I am going to devote most of the time to discussing ruptured intervertebral disks, because there are some aspects about it that will interest all of us.

#### MENIERE'S DISEASE

Ménière's disease is characterized by violent attacks of vertigo and vomiting. There is almost always a history of progressive deafness and tinnitus in one or both ears. It is easily cured by sectioning the vestibular part of the eighth nerve. However, there should first be a trial of the Furstenberg diet. Ménière's disease is due to an abnormality of calcium metabolism. In this diet all sodium is eliminated and ammonium chloride substituted. We have not had to cut so many vestibular nerves since this diet was devised. Patients do not always respond to the diet, however.

#### DISCUSSION

Dr. Collins: How often do you find Ménière's disease without deafness?

Dr. Echols: The attacks of vertigo, falling, and vomiting may begin before, during, or after the development of tinnitus and deafness. I have sectioned the vestibular nerve in a patient who had and still has almost perfect hearing.

#### SPASMODIC TORTICOLLIS

Spasmodic torticollis is not quite so hopeless as we always thought, although it is still impossible to obtain a complete cure. It is not usually a psychogenic disturbance. I am perfectly certain that most cases of spasmodic torticollis are due to encephalitis which can be demonstrated at autopsy. These patients can be greatly benefited by high cervical laminectomy and section of the spinal accessory nerve and the first three anterior spinal roots bilaterally.

#### DISCUSSION

Dr. Golden: I just became aware of the fact that spasmodic torticollis could be a basal ganglia disorder in 1933 when I saw Dr. Greenfield examine a case at autopsy. However, I am sure that they are not commonly organic in origin. In certain cases I have obtained cures by means of psychotherapy.

Dr. Echols: I do not insist that all spasmodic torticollis is organic in origin. In fact, I recently sent an obviously psychogenic case to Dr. Golden, who succeeded in producing a remarkable improvement.



We will not take any time to discuss epilepsy except to say that we think all such patients should have an x-ray picture made of their brain. It is easy to make a diagnosis of idiopathic epilepsy and let it go at that, but why not go a step further in search of the etiology? Surprising things are seen in the encephalograms of cases of so-called idiopathic epilepsy—various anomalies, porencephalic cysts, and so on. Moreover, the air injection usually has a therapeutic effect on these patients. Jacksonian epilepsy can often be cured by removing the surface scars on the brain which are causing the attacks. At operation the brain is exposed and an electric current is used to stimulate the brain until the trigger zone is found. That part of the cortex is excised.

#### CHORDOTOMY FOR PAIN

With regard to pain (chordotomy), there is nothing new. As you know, it is possible to cut certain tracts in the spinal cord which will make the patient anesthetic to painful stimuli below the level of the operation. There is no loss of touch or motor power. This is a useful procedure in the pains produced in *tabes dorsalis*.

#### ATHETOSIS

There is something new to tell you about athetosis. There are a number of diseases of the basal ganglia which make the patients go through contortion movements. They cannot be still. It is possible to do away with these movements by excising the prefrontal cortex.

#### FACIAL PARALYSIS

In cases of facial palsy we are still doing the nerve anastomosis. The peripheral end of the seventh nerve is sutured to the central end of the twelfth nerve and eventually the twelfth nerve enervates the muscles of the face.

#### PROGRESSIVE EXOPHTHALMOS

Malignant exophthalmos is a condition present in an occasional patient, usually one with goiter. The exophthalmos continues to progress after the hyperthyroidism is cured. Loss of the eyes and death from orbital cellulitis are the usual end results. This is easily prevented by elevation of the frontal lobes of the brain and removal of the roofs of the orbits. This permits some of the orbital contents to bulge into the cranial cavity, and the protruding eyeballs return to their proper position.

#### RUPTURED INTERVERTEBRAL DISK

In the center of each intervertebral disk is a gelatinous substance called the nucleus pulposus. This semifluid material is under great pressure, particularly when we stand, walk, jump, or lift. It is quite obvious that the nucleus pulposus would

escape from the disk if a pathway developed. Trauma and certain pathologic processes may produce such a pathway. At times the nucleus pulposus escapes into the cancellous bone of a vertebral body. Roentgenologists have long been familiar with the x-ray appearance of such lesions. Occasionally a fissure develops in the posterior portion of an intervertebral disk, permitting the nucleus pulposus to ooze into the spinal canal where it becomes encapsulated by the posterior longitudinal ligament. Fragments of the degenerating disk may also come to lie in the canal. Eventually a firm nodule of cartilage is formed which may range in size from a pin head to a small cherry. Such disk nodules may be found at autopsy in 15 per cent of cases. Fortunately, most of these lesions are too small to give symptoms. Occasionally, they are large enough to compress the spinal cord, giving a clinical picture of cord tumor. The literature contains a large number of these cases under such titles as chondroma of the intervertebral disk. Only recently has the true nature of such nodules been recognized.

Large nodules occurring in the lumbar region are well below the spinal cord and can damage only the roots of the cauda equina. As a rule, one single nerve root is stretched over a disk nodule. This gives rise to sciatic pain. The bone and wax model which is being passed around the room illustrates this point. Surgical removal of a disk nodule stops the pain. There is no longer any doubt but that ruptured intervertebral disk is the commonest cause of chronic sciatic pain.

The point I was most interested in bringing up tonight concerns ruptured disks in the thoracic and cervical regions and their relationship to obscure pains. Many types of chronic pain in the neck, arms, chest, abdomen, and back go unexplained. They are, as a rule, vaguely attributed to arthritis of the spine, intercostal neuralgia, gallbladder disease, and so on. Are not many of these chronic pains really due to nerve root irritation by ruptured disks?

Two months ago Mr. Fred Rehfeldt and I carefully examined the spines of 28 cadavers in the anatomy laboratory. In 13 of them we found one or more disk nodules. Several of these are now being passed around the room in specimen jars.

In summary, we know that cervical and thoracic disk nodules occasionally become large enough to compress the cord and cause paraplegia. We know that disk nodules in the lumbar region are the commonest cause of chronic low back pain and sciatic pain. Should we not now attempt to explain certain chronic pains in the neck, arms, and trunk on the basis of small ruptures of the intervertebral disks?

## LOUISIANA STATE MEDICAL SOCIETY NEWS

## C A L E N D A R

## PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

## BARBER NEW PRESIDENT

The Executive Committee of the Louisiana State Medical Society at a special meeting on July 22, 1939, upon the request of Dr. Clarence A. Lorio, of Baton Rouge, accepted his resignation as President of the Society.

Dr. D. B. Barber, of Alexandria, First Vice-President of the Society, was appointed by the Executive Committee to succeed Dr. Lorio.

Dr. E. L. Zander, of New Orleans, Second Vice-President, was appointed by the Executive Committee to replace Dr. Barber as First Vice-President; Dr. J. P. Mauboules, of Rayne, Third Vice-President, was appointed to replace Dr. Zander as Second Vice-President; Dr. Walter Moss, of Lake Charles, was appointed as Third Vice-President.

## COMMITTEE ON PUBLIC POLICY

It is very gratifying to the members of the Public Policy and Legislation Committee that they are able to report to the members of the Society that United States Senator Wagner's Health Bill #1620, creating socialized medicine with all of its damaging features, has been indefinitely postponed and will not be reported out of the Senate Committee at this session of Congress.

We also wish to report that Senator Wagner's efforts to amend the Social Security H. R. Bill #6635, pending before the Finance Committee of the Senate, to authorize the establishment of a National Medical Service under the Social Security Board, failed, and the bill was returned to the House of Representatives without such an amendment, thus leaving us free to practice medicine as it has been in the past and as it should be in the future.

Of course this only frees us from national socialized medicine until the next session of Congress when, no doubt, Senator Wagner will renew his efforts to have his bill enacted.

We should keep ever alert in our efforts to contact our Senators and Congressmen from Louisiana to kill such a bill should it come up during the next session of Congress.

C. Grenes Cole, M. D., Chairman.

## WARNING TO OUR MEMBERS

The Secretary-Treasurer has been informed that there are representatives of the so-called "Southern Research Bureau" contacting physicians in the state in an attempt to compile biographic sketches. Some of our members have been told by these representatives that this work is being undertaken under the direction of the State Medical Society. This is not a fact and it is suggested that our members do not subscribe to the work under this misapprehension. Some have already made payments to representatives and have not received anything in return, being unable to locate the men to whom payments were made.

## NEWS ITEMS

Dr. Frederick F. Boyce, Assistant Professor of Surgery, Louisiana State University, has been announced by the Mississippi Valley Medical Society as the winner of the annual essay contest. Dr. Boyce's winning paper was entitled "Toxic Thyroid Disease as a Surgeon Would Have the General Practitioner Conceive It, with a Special Note on the Liver Factor." His paper will be presented at the meeting of the organization in Burlington, Iowa, September 27-29, 1939.

The annual conference of the National Society for the Prevention of Blindness will be held in New York City, October 26-28, 1939, with headquarters at the Astor Hotel. Reservations may be obtained in advance at the office of the Society, 50 West 50 Street, New York City.

Dr. Frank Brawley, of Chicago, has been made president-elect of the American Academy of Ophthalmology and Otolaryngology.

Dr. Nathan H. Polmer, of the Graduate School of Medicine, Louisiana State University Medical Center, was one of the three guest speakers at the meeting of the Southeastern Section of the American Congress of Physical Therapy in Jacksonville, Florida. Dr. Polmer will also participate in the Physical Therapy Instruction Seminar which the

American Congress of Physical Therapy will hold at the Hotel Pennsylvania in New York from August 30 through September 2. Dr. Polmer's subject will be "Physical Therapy in Fractures."

The Veterans' Administration is anxious to secure well trained young men to enter the service. The entrance salary is \$3200 a year, at the end of three years is increased to \$3800 and five years later to \$4600. A Civil Service examination and rating are necessary as well as four months of preliminary training.

In addition to the salary, after thirty years of service, retirement on a pension is permitted.

Assistant Adjutant General J. D. Moss notes that medical service to C. C. C. camps will be provided by the employment of civilian physicians. Appointment to these positions is open to any Medical Reserve Officer for an indefinite period with a salary of \$2600 to \$3200 per annum. Applications must be submitted to the Commanding General, Fourth Corps Area, Post Office Bldg., Atlanta, Georgia.

With the 186th Medical Regiment at the recent encampment at Camp Beauregard, Alexandria, July 9-23 were the following officers from Louisiana: Colonel Anees Mogabgab in command of the regiment; Captain J. R. Flowers, Captain C. E. Gorman, Captain G. E. Burch, Captain J. D. Landry, Captain Chester Fresh. Reserve officers on duty with the regiment included Colonel J. H. Musser.

The fourth annual Congress of the European Society of Structive Surgery will be held in Paris, October 5-7, 1939. For further information concerning this meeting address the Secretary of the Congress: Maison de Chirurgie, 9, rue de Turin, Paris.

Acting Assistant Surgeon Edward W. Crow has been ordered to proceed to the U. S. Quarantine Station, New Orleans, for duty.

Medical Intern Ralph P. Christenson has been relieved of duty at New Orleans and ordered to proceed to Seattle, Washington, for duty there.

#### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the week ending June 24, the twenty-fifth week of the year, these diseases occurred in numbers greater than ten: 118 cases of syphilis, 37 of whooping cough, 33 of pulmonary tuberculosis, 30 of pneumonia,

27 of malaria, 26 of cancer, 23 of measles, 21 of typhoid fever, 12 of gonorrhoea and 10 of diphtheria. A case of undulant fever was reported from Calcasieu and one of tularemia from Bossier. For the twenty-sixth week of the year, which came to a close July 1, there were listed 105 cases of syphilis, 53 of pneumonia, 37 of gonorrhoea, 32 of malaria, 27 of cancer, 24 of pulmonary tuberculosis, 21 of typhoid fever. As in the previous week, the typhoid fever cases were well scattered throughout the various parishes of the state. In this week a case of typhus fever was discovered in Calcasieu Parish and one in Jefferson Davis. For the twenty-seventh week, it will be noted that syphilis, as usual, led all other diseases reported with 198 instances listed. It was followed by 38 cases of cancer, 27 of pneumonia, 23 of typhoid fever, 20 of pulmonary tuberculosis, 17 of malaria, 12 of whooping cough, 11 of measles and 10 of influenza. Another case of typhus fever was reported in Calcasieu, as well as one in Orleans and three in Iberia Parish. Caddo and Union parishes, with five cases each, led all other parishes in typhoid fever reported.

#### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week which came to a close June 10, there were 137 deaths, as contrasted with 120 in the previous week. Of these 82 were white and 55 negro; seven were in children under one year of age. For the week which ended June 17, the number of deaths fell to 123, divided 78 white and 45 negro. There were 12 deaths in infants. In the next week, which terminated June 24, 139 deaths were listed largely because of an increase in the negro deaths, namely to 59. The number of deaths in the white population, 80, remained practically the same as that for the previous week. There were 14 children under one year of age who expired this week. There was a slight increase in the number of deaths for the week ending July 1, two more than the previous week, namely 141. This was due to the fact that two more white people died, as the number of negro deaths remained stationary. Fifteen of the deaths occurred in infants.

#### AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories (Part I) for Group B candidates will be held in various cities of the United States and Canada on Saturday, January 6, 1940, at 2:00 p. m. Applications for admission to these examinations must be on file in the secretary's office not later than October 4, 1939.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, Pa.

---

JOHN SIDNEY BRANCH, M. D.  
(1859-1938)

The death of the late Dr. John Sidney Branch, of Lettsworth, was not recorded in the memorial address concerning deceased members of the Louisiana State Medical Society. This error arose from the fact that the death was not reported.

Dr. Branch was a loyal and faithful member of the State Society for many years. For fifty-seven years, he was a beloved practitioner of medicine. At the time of his death, he was president of the Pointe Coupee Parish Medical Society. Dr. Branch died on March 8, 1938.

---

**WOMAN'S AUXILIARY**

**Louisiana State Medical Society**

President—Mrs. S. M. Blackshear, New Orleans.  
President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

---

In these changing times, the Legislative Committee of our National Auxiliary has taken on a new importance. We are therefore grateful to Mrs. Arthur A. Herold, chairman of this committee and a member of our State Auxiliary, for giving us her report which was read at the recent National Auxiliary Meeting in St. Louis.

Here is an opportunity to become better informed on this vital subject.

---

**NATIONAL AUXILIARY LEGISLATION**

As Chairman of the Legislative Committee of the Woman's Auxiliary to the American Medical Association, I beg leave to submit the following report:

It has been a most enjoyable and enlightening experience to have served as Legislative Chairman for our National Auxiliary. In 1932 your Chairman occupied the same position and she finds many

changes have taken place in the ensuing seven years. At that time there was very little for a National Chairman to do other than to encourage the states to work with their respective medical societies; now however, in 1939, the picture is entirely different.

The medical profession has been called upon to protect its rights and to maintain its ideals, and the auxiliary as a component part of the medical profession must do its part. The step for us is of course self education and that is why it is so important for us to put forth every effort until we are able to discuss intelligently and coherently these problems. The physicians of the United States are trying to find a road of mutual understanding which will lead to a realization of their ideals, which are, as you know, the best medical care for all the people all the time.

A tentative plan of work was submitted at our National Board Meeting in November: The first part of this program was to try to encourage the county auxiliaries to follow the resolution presented in San Francisco by Mrs. Kech, which was in accordance with the repeated suggestion of Dr. Irvin Abell, President of the American Medical Association, that the Woman's Auxiliary to the American Medical Association recommends to, and urges on, the presidents of auxiliaries to state societies the organization in all county auxiliaries of study groups to be concerned with the dissemination of accurate knowledge concerning the harmful effect of present social and economic movements on the practice of medicine. The second part was to canvass our members and to request every one of them to vote until our voting strength is 100 per cent. The planning of this program has proved to be much easier than the putting of it into effect, but a beginning has been made and it may be that some time in the near future every county will be following the suggestion of Dr. Abell and Mrs. Kech and every physician's wife will be a registered voter.

Before writing the articles for the January and March *News Letter* the state chairmen of legislation were circularized to find out how many were following this resolution and having study groups. Twenty-four states responded and all but four reported their county auxiliaries as having either a study group or a part of a program devoted to this most vital subject. In these articles some mention was made of every state that answered the card. The full reports are on file and are at the disposal of any of you who may wish to see them. Your Chairman feels that these *News Letters* are a very important part of our work and are invaluable to county chairmen. They bring them information, inspiration and encouragement that could scarcely reach them any other way. Of course much of this effect is due to the capable work of our Press and Publicity Chairman for she is untiring in her efforts to make these letters

as complete and informative as it is possible to make such a publication.

Owing to the illness of my Regional Chairman of the Southern District, and to the unfortunate accident that my Regional Chairman of the North Central suffered, and to the inability of your Chairman to secure anyone to take charge of the Eastern District, the work of these respective districts has been carried on by your National Chairman to the best of her ability. My Regional Chairman of the Western District is also Legislative Chairman for Washington State and she has been most active and has accomplished many worthwhile things. Her program of suggested study sent to her county chairmen would be worth any auxiliary member's time to study and ponder. I shall give here her suggested topics for study, each of which had subtopics:

1. State or Socialized Medicine.
2. Free Clinics: Uses and Abuses.
3. Basic Science Law.
4. Proposed Federal and State Legislation.
5. Official Medical Service Bureau.
6. The Healing Cults.
7. Anti-medical Propaganda.

This is also the state that is 100 per cent registered and 100 per cent voting.

Full reports of activities along legislative lines have been received from nineteen states. All of these reports are interesting and all show a decided trend toward the realization of the importance of self education; many are urging that a definite program of study be planned for them by your next Chairman of Legislation.

As the time allotted me is necessarily limited, it is not practicable to give even briefly the reports of the states that were considerate enough to send them. They are all on file, however, and any of you may read them or use them in any way that you feel will assist you in your work. Pennsylvania, New York, and Tennessee are among the states doing the most constructive work. The *May News Letter* carried an extensive and interesting article by our immediate Past President who is now Chairman of Public Relations for the State of Pennsylvania. Another Past President was also on the job, as it were, in Tennessee for she obtained from the legislature of that state 6182 subscriptions to *Hygeia*. In the great State of New York, the aim is to educate every member of the auxiliaries and their friends. They try to accomplish this by devoting ten minutes of every meeting to medical current events, and to well planned programs for lay organizations.

There is so much written about the medical profession now that it is in the limelight, that it has not been easy to try to keep informed and from this information to try to gather material to send to the state chairmen. This year "On the Witness

Stand" by J. Weston Welch and an article by Dr. Charles Gordon Heyd, a past President of the American Medical Association, have been mailed to all states. Many have acknowledged this material and some have been kind enough to write that they have found it helpful.

The work of your National Legislative Committee has necessarily gone forward slowly for many reasons, but primarily for two: First, the amount budgeted for this committee was only ten dollars; heretofore this amount has been ample for this committee to function with, but now that we have so much Federal legislation pending and the medical profession is so much in the public eye it is woefully inadequate. Second, the work of this committee is more or less in the field of pioneering and must feel its way slowly and deliberately.

A most widely publicized book that is supposed to be a fair and unbiased account of what has led up to the situation that is confronting us today, is written by a journalist and the title of it is "American Medicine Mobilizes." This book is brought to your attention for it is worth your consideration for the reason that it will make you aware of the type of literature that we must combat. It is well written and sounds so true that unless you are informed you will be inveigled into believing that what the author accepts as facts are facts. He accepts the statistics of a survey conducted in a year by untrained canvassers against the American Medical Association with ninety years of experience.

Our work has only begun, for the Health Program, that even now has been submitted to a subcommittee of the Senate, has many channels to pass through before it can be either accepted or rejected. The report of this committee's findings will go to the main committee which in turn will pass it on to the Senate with its recommendations. After the Senate has acted on this report, it will then have to weather a course in the House before it is ready to be submitted to the President; should there be a disagreement between the two Houses, the matter will then have to be thrashed out before a committee of conferees who shall have to agree and then be backed by their Houses before it reaches Mr. Roosevelt. It therefore seems there is little, if any prospect, of definite action at this session of Congress. It is important that you follow this bill step by step and be cognizant of each change that is made as it makes the rounds of the powers in Washington. The time has come when the geographic boundaries of the medical world have vanished and everyone must study the Federal legislation as well as that of the individual states. Throughout the ages medicine has adapted itself to changing conditions. It now faces one of those states of changing social customs and aspirations, and organized medicine must take the lead for the American public expects this of it. The National Auxiliary as a part of organized medi-

cine must follow its leaders or it will have to admit it has been weighed and found wanting. Organized medicine is confronted with the battle of the century with the health of the nation as the stake. Dr. Alexis Carrel has said, "The quality of life is more important than life itself," and it is to maintain this quality that the fight is being waged. The wish of your Chairman is, that the fight will be short and that we as doctors' wives will do our

part in helping it to reach a happy and successful ending.

Respectfully submitted,  
Ada A. Herold, Chairman.  
(Mrs. A. A. Herold.)

Respectfully submitted,  
Mrs. Edgar Burns,  
Press and Publicity Chairman.

---

## BOOK REVIEWS

*Manual of Toxicology*: By Forrest R. Davison, Ph. D. New York, Paul B. Hoeber, Inc., 1939. Pp. 234. Price \$2.50.

This manual, with its presentation of all that is essential in the field of toxicology and with its intelligent arrangement of the matter, should be quite valuable for those who are interested in, but have only occasional contact with toxicologic questions. At the end of each of the eight chapters there is a list of pertinent general literature, which enables the reader to go into such details as are beyond the scope of the book. Each substance discussed is first very briefly described pharmacognostically; this is followed by an equally brief statement of its pharmacodynamic action, leading up to its toxicology and ending with a general outline for the treatment of its toxic effects. Fatal dose, necropsy findings, and the organs best suited for toxicologic examination are included. An appendix of 56 pages on toxicologic analysis gives the more important chemical tests for poisons. The author's desire to omit ambiguous or problematic statements occasionally leads him to state facts in a way open to discussion. For instance: "Codeine is not a habit-forming drug" will be questioned in this form by authorities concerned with the apparently spreading misuse of the drug as a substitute in heroinism or morphinism.

Since the author succeeds in presenting the matter equally well from the pharmacologic as from the clinical angle, the reviewer believes that this manual may well stimulate some teachers of pharmacology to devote more time to the important and often neglected field of toxicology. The book used as an auxiliary text will make it quite easy for the student to follow lectures on the main facts of toxicology.

GERHARD KATZ, M. D.

*Pediatric Symptomatology and Differential Diagnosis*: By Sanford Blum, A. B., M. S., M. D. Philadelphia, F. A. Davis Co., 1938. Pp. 500. Price \$5.00.

"Pediatric Symptomatology and Differential Diagnosis" is, as the title indicates, an elaboration of the symptoms and diagnoses of childhood dis-

eases. The reviewer thinks it will be of use to the general practitioner rather than to the pediatrician.

SUZANNE SCHAEFER, M. D.

*English, German, French, Italian, Spanish Medical Vocabulary*: By Joseph S. F. Marie, foreword by Chevalier Jackson, M. D., Sc. D., LL. D., F. A. C. S. Philadelphia, P. Blakiston's Son & Co., 1939. Pp. 358. Price \$3.00.

For a valuable desk reference book, we can heartily recommend this foreign language medical dictionary. It is arranged alphabetically by the English form of the medical term or phrase. In the same line with the English word, across the page, is found its equivalent in German, French, Italian and Spanish. The gender of nouns is noted, where this information is necessary for use.

An appendix gives rules for pronunciation in the four foreign languages and a glossary of phrases most needed in questions and commands between the doctor and patient, with the foreign language equivalent in each case.

This small volume should be a welcome addition to the personal library of any physician.

MARY LOUISE MARSHALL

*Maternal Care in a Rural Community Pike County, Miss., 1931-36*: By Maxwell E. Lapham, M. D. New York, Commonwealth Fund, 1938. Pp. 65. Price \$.25.

In a short volume of 65 pages, the author presents a resumé of maternal care in rural districts. The problem of maternal care is analyzed in regard to maternal and fetal deaths as compared to other causes of death in females in the childbearing period, locally as well as nationally. The attention received by all pregnant women in the community during this period is carefully indicated and the progress toward more complete medical supervision noted. The difficulties encountered in rural practice as to adequate examination and visits and postpartal follow-ups are clearly stated. The inadequacies of such a rural community in physicians, nurses, and midwives are set forth. The causes of fatalities are defined and analyzed.

In conclusion, the author lists a suggested pro-

gram of medical care for physicians, midwives, and nurses, in an effort to obtain maximum pre- and postnatal care where professional services are limited.

JOHN C. WEED, M. D.

*Secondary Gastrointestinal Disorders:* By Julius Friedenwald, M. D., Theodore H. Morrison, M. D. and Samuel Morrison, M. D. Baltimore, William Wood & Co., 1938. Pp. 251. Price \$3.00.

These clinics should prove unusually interesting to the general practitioner as well as the specialist, but should be most helpful to those who teach medical students. The volume will enable them to do more than analyze the gastrointestinal symptoms which are reflex; it will enable them to explain the pathologic physiology of such symptoms.

The many carefully studied case reports are typical of the authors' excellent works on gastroenterology. The book should help fill the gap in the field of gastroenterology dealing with the origin of functional and organic digestive symptoms from without the gastrointestinal tract.

LOUIS OCHS, JR., M. D.

*Cause and Prevention of Disease:* By William Harvey Perkins, M. D. Philadelphia, Lea and Febiger, 1938. Pp. 713. Price \$7.50.

This book, dedicated "To my family and friends, in whom I have found far more interest trying to keep them well than caring for them when ill" was the outgrowth, it is asserted in the preface, of the author's task of organizing a course in preventive medicine, for which he found no single book or any small number of books which met his needs.

The subject matter is handled under six categories: Inherited Factors; Defects of Nutritive Elements; Exogenous Chemical Agents; Physical Forces and Energies; The Processes and Effects of Invading Organisms, and Psychobiologic and Biosocial Factors and Their Effects. The approach to the subject is both novel and refreshing. More space is devoted to the physiologic aspects of disease than is usual. The nutritional phases are especially well set forth, and the treatment of vitamins is concise and modern. The section on exogenous chemical agents contains an excellent and extended consideration of poisons.

Nearly half of the book is devoted to communicable diseases, beginning with a list of the organisms and habitats; this is followed by a list of the hosts and parasites. Under the heading "organisms acquired from freshly contaminated sources," such as dressings and sickroom supplies, are listed the organisms of plague and tularemia and those of septic conditions, i. e., staphylococci and streptococci. Under the same general heading are listed organisms from contaminated articles of clothing, i. e., smallpox virus and *Treponema pallidum*. The reviewer doubts whether any useful

purpose will be served by grouping together in this manner the sources of infection usually accepted as well established with those which may be, to say the most, doubtful or of only slight importance.

It is gratifying to note a recognition of the importance of the transmission of *Endameba histolytica* through drinking water. In the same connection the author outlines a method of control of food-handlers which would be ideal if it were practicable; the reviewer doubts its practicability.

The synopsis of preventive measures in infectious and parasitic diseases is especially full. That even an excellent synopsis has its limitations, however, is illustrated by the listing under leprosy, in which no mention is made of geographic considerations in the transmission of the disease.

One notes, in general, a commendable conservatism in regard to the prophylactic value of biologic products. The difficult field of psychobiologic and biosocial factors, with which the final chapter is concerned, is admirably handled.

The systematic tabular form in which much of the subject matter is presented adds to the value of the book for reference purposes.

G. W. MCCOY, M. D.

*Massage and Remedial Exercises:* By Noel M. Tidy. Baltimore, William Wood and Co., 1937. Pp. 456. Price \$5.25.

This third edition is a comparatively small volume dealing with certain aspects of physiotherapy. The measures used are universally applicable and require no expensive apparatus. The book was written primarily for Senior medical students and applicants for the rank of physiotherapist in England.

It is arranged in an encyclopedic fashion and contains a vast amount of material. It is not a volume for casual reading, but serves as a reference to determine the type of treatment applicable in the selected case.

The conditions covered consist of fractures, dislocations, sprains, wounds and scars, stiff joints, diseases of the nervous system, diseases of muscles, deformities, constitutional diseases, and certain gynecologic affections. The presentation is quite simple and is easily understood. This volume should serve its purpose particularly as a reference for the lay physiotherapist.

GEORGE C. BATTALORA, M. D.

*Surgical Pathology of the Diseases of the Mouth and Jaws:* By Arthur E. Hertzler, M. D. Philadelphia, J. B. Lippincott Co., 1938. Pp. 248. Price \$5.00.

Another valuable monograph by Dr. Hertzler, this time on the diseases of the mouth and jaws, has been completed. It is written in the same clear, concise style so well known to us. The experiences

of this keen observer are put down here and will be of great value to those interested in the special field of surgery and pathology.

JOSEPH ZISKIND, M. D.

*Zur Entdeckung der Insulinschocktherapie bei akuten Geisteskrankheiten, insbesondere bei der Schizophrenie:* By Julius Schuster, M. D. Budapest, Pester Lloyd-Gesellschaft, 1938. Pp. 90. Price about \$5.50.

This is an interesting monograph dealing with insulin shock and its effect on psychoses, especially schizophrenia. In it Dr. Schuster properly lays claim to being the first to utilize the method, having employed it in 1926, only four years after the discovery of insulin, and ten years before Sakel's work. Schuster first described the beneficial effects of large doses of insulin on hallucinations and many thinking disorders. He appears to establish adequately his claims for priority in the use of insulin shock for the treatment of mental disease.

The monograph gives in detail the chemical structure of insulin, and its resemblance to the protein molecule. He likens its effects to protein shock, and gives the reason supporting his view. He claims for insulin certain anaphylactic properties, and believes that it produces an anaphylactic brain reaction which is responsible for subsequent clinical improvement. He draws certain analogies between anaphylaxis and the appearance of immunity and symptoms during infectious disease.

The monograph is technical in nature and would be of interest primarily to the group of investigators dealing with the chemical approach to mental disorder; it contains, however, material stimulating the thoughts of the clinical psychiatrist as well.

L. A. GOLDEN, M. D.

*The Radiology of Pulmonary Tuberculosis:* By J. E. Bannen, M. B., Ch. B., D. M. R. E. Baltimore, William Wood & Company, 1937. Price \$4.50.

The author has made an attempt to cover a very broad and exhaustive subject in a rather small volume. If the difficulties of such a task are considered, this work of nine short chapters should be considered a moderate success.

In the first chapter the author considers the technic of chest radiography and discusses various types of apparatus and the essential factors of correct roentgenography. The anatomy and physiology of the normal lung are discussed in Chapter II. The next five chapters deal with the pathology, clinical aspects and differential diagnosis of pulmonary tuberculosis. In Chapter VIII the pathogenesis of pneumoconiosis and its relationship to pulmonary tuberculosis are considered. Collapse therapy and its roentgen control are discussed in the last chapter.

After reading this volume, one gains the impression that it is entirely too short and that essentials have been omitted. In spite of the lack of detail, many important aspects of the subject are considered briefly. Several references are included at the end of each chapter. The illustrations of roentgenograms are good and well chosen, and, as a whole, the text is clear and concise. This work may serve as an outline for the busy practitioner who wishes to review in a brief manner the subject of pulmonary tuberculosis.

J. N. ANÉ, M. D.

#### PUBLICATIONS RECEIVED

American Can Company, New York City: The Canned Food Reference Manual.

Industrial Health Book Company, Chicago: *Medicolegal Phases of Occupational Diseases* by C. O. Sappington, A. B., M. D., Dr. P. H.

Lea & Febiger, Philadelphia: *Diseases of the Mouth and Their Treatment* by Hermann Prinz, A. M., D. D. S., M. D., D. Sc., Dr. Med. Dent., and Sigmund S. Greenbaum, B. S., M. D., F. A. C. P. *Diagnosis and Management of Diseases of the Biliary Tract* by R. Franklin Carter, M. D., F. A. C. S., Carl H. Greene, Ph. D., M. D., F. A. C. P., and John Russell Twiss, M. D., F. A. C. P.

J. B. Lippincott Company, Philadelphia: *Medical State Board Examinations* by Harold Rypins, A. B., M. D., F. A. C. P. *Treatment by Diet* by Clifford J. Barborka, B. S., M. S., M. D., D. Sc., F. A. C. P.

Little, Brown and Company, Boston: *Priests of Lucina* by Palmer Findley, M. D., F. A. C. S.

The Macmillan Company, New York City: *Health Insurance with Medical Care* by Douglass W. Orr, M. D., and Jean Walker Orr. *Otolaryngology in General Practice* by Lyman G. Richards, M. D.

Russell Sage Foundation, New York City: *Your Community, Its Provision for Health, Education, Safety, Welfare* by Joanna C. Colcord.

Charles C. Thomas, Springfield, Illinois: *Roentgen Technique* by Clyde McNeil, M. D. *Cancer of the Colon and Rectum* by Fred W. Rankin, B. A., M. A., M. D., Sc. D., F. A. C. S., and A. Stephens Graham, M. D., M. S. (in Surgery), F. A. C. S.

University of California Press, Berkeley: *The Anaerobic Bacteria and Their Activities in Nature and Disease* (2 vols.) by Elizabeth McCoy and L. S. McClung.

Williams & Wilkins Company, Baltimore: *Problems of Ageing* edited by E. V. Cowdry. *Relation of Trauma to New Growths* by R. J. Behan, M. D., Dr. Med. (Berlin), F. A. C. S.

William Wood and Company, Baltimore: *Manual of the Diseases of the Eye* by Charles H. May, M. D., with the assistance of Charles A. Perera, M. D.



# New Orleans Medical

and

# Surgical Journal

Vol. 92

SEPTEMBER, 1939

No. 3

## THE MEDICAL PROFESSION\*

### A BUSINESSMAN'S POINT OF VIEW

EDWARD D. RAPIER

NEW ORLEANS

It is an outstanding honor to be permitted to address this meeting. I thoroughly realize the honor and understand the responsibility which I assume in discussing the problems before us at this time. The purpose of this discussion is to place before you, for your consideration, what seems to be the pressing need of very close cooperation between the medical profession and the business world.

I personally feel that the medical profession has, for too long, lived in a world of its own, a world rich with glorious deeds, hundreds of thousands of lives saved, a world with untold opportunities — most amazing and most fascinating. The job to be done, and being done by you physicians, is vast and breath-taking.

However, just as your wife may be reluctant to put down a good story to wash dishes, so do you feel reluctant to lay aside this all absorbing work of yours to think of every day business problems which you must consider.

The public quickly forgets the lives you have saved, the times that you have gotten out of bed at midnight, after a hard day's work, to minister to the sick, the great amounts of time and effort you have given to the poor without compensation; but in

the average person's mind linger the minute details of what to you may be trivial incidents but to them seem important, such as being kept uselessly waiting for hours, or the size of the bill for which they cannot find justification, and many other such things that really are secondary when compared with the lives you save.

Now you hold one of the highest places in our order of life. The medical profession is at the top of the ladder of human achievement, entitled to all of the respect and honor that we citizens are capable of offering. But you must not forget that in all relations where the public is concerned, serious consideration must be given to these public relations.

Have not you, as a profession, somewhat held yourselves a bit aloof from civic work? A smaller proportion of physicians are members of the Association of Commerce than other similarly prominent businesses and professions. If you do not take a more active interest in civic matters you lose contact with the public at a time when the best interests of your profession are vitally at stake. You cannot expect the allied business world to come to your rescue unless you fight shoulder to shoulder with us in our common problems.

The politician knows only too well that the best way to get votes is not entirely on the basis of right and wrong. As individuals your members have often responded wonderfully and generously, but as a group you have either thought it not necessary or beneath your dignity to join with the business world in civic matters, even though this cooperation would add vastly to the

\*Read before the Orleans Parish Medical Society May 8, 1939.

public understanding of your particular problems. And, unfortunately, you, as individuals, often pay dearly for the mistakes of your organization in matters of this type. To clarify this point of view, several observations may be of assistance.

For example, I was amazed to learn that the average, well equipped, specialist's office runs an actual cost, to the specialist, of approximately 75 cents per patient treated in his office. I am quite certain that the public does not understand this. The only thing that they see is a waiting room full of patients which they quickly calculate three dollars per person or whatever the price may be and imagine that the doctor is getting wealthy off of them.

A little of what we business men call salesmanship in your profession in the matter of public relations, is a most vital need. A little closer cooperation between you and the business world would go a long way to strengthen the foundations of public opinion upon which you ultimately must rest. It is common gossip, justified or not, that the medical profession has no regard for the other fellow's time, packing the waiting rooms full of people and making a sick patient wait hours needlessly. If this practice is necessary, it is then also necessary to explain it to the public. Also the public has never been able to justify in their minds, the free services rendered to those who have the ability to pay. It is the average middle class citizen who pays the freight and who wants a dollar's worth of service for the dollar he pays. He wonders whether it is right, or wrong, to make him pay for the service that you give your friends because of professional etiquette, or because some people are averse to paying doctors' bills, and no matter how you twist it the man who pays, pays not only for himself but for those who do not pay. I am informed that this free service amounts to about one-third of the total charge. It is very much as if you were charged three dollars for a two dollar shirt, just because previously a shirt had been given to a friend of the proprietor who was in the shirt business. After all would not this be quite

similar to what is going on in private medical practice?

The public also wonders why the medical profession refuses to have a price fixed or a money understanding beforehand. Business men will make commitments and they feel that there is a measure of poor faith in the medical profession's policy. If your attitude is justified, then your position must be explained reasonably to the public.

Now, just as industry had to clean house so that the politicians would not put us out of business, so do you have to use what we in business would call a little salesmanship and correct certain abuses or you may some day wake up to find that the politician has done it for you.

I have been delighted to learn that in recent weeks more and more doctors have agreed to give special appointments rather than let their paying patients cool their heels for hours. I have been delighted to learn that more and more doctors are seeing fit to cooperate with such movements as the Community Chest because, when you turn down the Community Chest solicitation it costs in public ill will many times over the five, ten or twenty dollars that you would otherwise subscribe.

There are about 2000 representative solicitors in this organization and the common subject for cursing and damning each year is the attitude of the medical profession. They never think of the time that you give to charity, they think of the ten or twenty dollars that they should have collected, and did not. Many misconceptions exist in the public mind regarding charity work; they are too complex for discussion at this time, but in any event salesmanship or, in your case, public relations contacts must be considered by you to allay the ill will which is bred by such aloofness on your part.

You have made many steps in the right direction recently. Your leadership at present seems to be taking the bull by the horns. The very fact that I have been allowed to speak to you on what, after all, is a very ticklish subject is evidence that Dr.

Peacock and the Board are deserving of the trust that you have placed in their leadership. Certain of your members have taken an interest in civic matters individually. Dr. Chas. A. Bahn, is chairman of the Health and Sanitation Committee of the Association of Commerce. Dr. Jos. Wymer has been active in civic matters as well as many other members of your institution, but these efforts in the past have been isolated and I believe that it is vitally necessary that you tackle this problem of public relations and cooperation with the businessman either to iron out the injustices in the situation or if they are not injustices, explain them to the public so that the public will not think you are taking advantage of the fact that you hold health and life itself within your control.

—o—

### THE TOXIC EFFECTS OF SULFANILAMIDE AND SULFAPYRIDINE\*

CLYDE BROOKS, M. D.†

NEW ORLEANS

The golden age of medicine might seem to be dawning. For generations medical scientists have been seeking a drug which would kill bacteria living, growing and multiplying in the body of a man or an animal without also killing the man or the animal. Ehrlich, when he discovered 606, or salvarsan, aimed at what he called *therapia magna sterilans*, but later found that he had discovered only a good remedy for syphilis. Since Ehrlich's discovery of salvarsan, other drugs have been found which will cure certain other diseases caused by spirochetes, trypanosomes, and other protozoan parasites. All of these, however, are animal organisms. No one had ever found a drug which would destroy vegetable organisms, such as bacteria, without also killing the host, until Domagk<sup>1</sup> injected a red dye into white mice which had

previously been injected with deadly doses of streptococci, with the startling result that the dye saved the lives of the animals.

Domagk named the red dye prontosil. Its full chemical name is 4-sulfamido-2',4'-diaminoazobenzene. It was soon found that prontosil worked well in human cases of streptococcal and similar infections. Later a simpler compound, at first called prontosilin and now generally known as sulfanilamide, was discovered which also gave good results in both animal and human cases of streptococcal and other infections. Its full chemical name is *p*-aminobenzenesulfonamide. This drug has now largely replaced prontosil. Still another compound has recently been found which offers some advantages over others of this group. It is generally called sulfapyridine, but it is also known as M. and B. 693, and dagenan. Its full chemical name is 2-sulfanilyl pyridine. In all probability other closely related chemical substances, with some variations from those already in use, will later be found which will be just as useful and not so toxic.

At the present time, however, sulfanilamide and sulfapyridine are the words most frequently heard on the lips of every distinguished physician. A wave of sulfanilamide enthusiasm has swept the world. Even conservative Morris Fishbein says, "Obviously if the drug is useful in all these conditions, it is one of the greatest developments that has ever occurred in medical science." He immediately adds a note of caution, however, by stating "but like all other powerful remedies, the use of sulfanilamide is not an unmixed blessing."

The newspaper and radio publicity has so fired the imagination of the laity that they are asking for sulfanilamide. As a result, it is now becoming difficult for the physician to hold an even keel and to use sound judgment, caution and wisdom in the use of the new magic pills. But caution and restraint should characterize the use of these new and powerful remedies. Any drug which is potent enough to poison bacteria living in the body must be a very powerful drug, a sort of therapeutic dynamite.

\*Read before the Orleans Parish Medical Society April 10, 1939.

†From the Department of Pharmacology and Experimental Therapeutics of the School of Medicine of Louisiana State University.

Fortunately sulfanilamide is not quite so poisonous to man as it is to bacteria, at least man can survive longer. Perhaps this is because the life span of the bacterium is so much shorter than that of the body cells of man. If the drug merely suspends multiplication of bacteria, therefore, it will be effective in ridding the body of infection. Lockwood<sup>2</sup> finds evidence that it stops the germs from digesting proteins, and that this interference with digestion in turn halts their growth and multiplication. If a man tried to take the drug over a long period of time, it would probably sterilize him also, that is, if it did not prove fatal to him.

#### TOXIC EFFECTS

The toxic effects of sulfanilamide and of sulfapyridine are exerted on almost all organs and functions of the body, including the nervous system, the gastrointestinal tract, the urinary system, the blood and the skin.<sup>3</sup> In practically every patient to whom these drugs are given there is evidence of a powerful depressant effect on the central nervous system. This is evidenced by malaise, a sense of depression, dizziness, a feeling of light-headedness, and headache. Sometimes there is severe general depression, and even collapse. Also in nearly every person there is evidence of the irritating action of the drugs on the gastrointestinal tract, as shown by nausea, vomiting, and diarrhea. Anorexia develops when their administration is continued over a long period of time.

In most cases there is evidence of the irritating effects of the drug on the urinary system, as shown by the appearance in the urine of albumin, epithelial cells, red blood cells, and casts. Severe hematuria is one of the most dangerous effects of sulfanilamide poisoning, and may prove fatal.

Delayed deaths sometimes have occurred in rats which had apparently been cured of infections by the use of sulfapyridine.<sup>4</sup> The fatalities were due to renal calculi, which were formed from the precipitation of the drug as it was being excreted through the kidneys and which became im-

pacted, causing more or less complete obstruction to the passage of urine. The kidneys were large and soft, the pelves and ureters dilated, and the bladders empty and contracted.

#### CYANOSIS

Cyanosis of some type or degree occurs almost constantly when sulfanilamide or sulfapyridine is used. It is frequently due to the formation of methemoglobin, caused by the sulfone group ( $-SO_2$ ) which is part of the sulfanilamide molecule. The sulfone group is also present in aniline derivatives and in coal tar antipyretics, both of which are known to produce methemoglobinemia. Five per cent methemoglobinemia is enough to produce clinical cyanosis, and 15 per cent produces profound cyanosis. Stopping the sulfanilamide usually results in the disappearance of the cyanosis in about 24 hours, and the administration of one or two grains of methylene blue in capsules every four hours will facilitate and accelerate the disappearance of the methemoglobinemia.

A second type of cyanosis is apparently due to the formation of sulfhemoglobin: Hydrogen sulfide, formed by putrefactive processes in the large bowel, is readily absorbed and combined with the hemoglobin of the blood, thus preventing the hemoglobin from carrying oxygen, the deprivation in turn causing cyanosis. Sulfur from the sulfanilamide molecule may also be used to form the sulfhemoglobin. The administration of magnesium sulfate or other saline cathartics, the ingestion of foods with large residues, or of eggs or other food rich in sulfur, all favor the formation of sulfhemoglobin and should be avoided during the use of sulfanilamide. Sulfhemoglobinemia is sometimes fatal. Methylene blue has no appreciable effect on this condition, but the use of oxygen is beneficial.

A third type of cyanosis is not apparently associated with any hemoglobin abnormality, but is due to a black oxidation product of the drugs, which dyes the red corpuscles. Another theory is that the violet color is due to the effects of ultra-violet radiation on the drugs, which produces a purplish

color in them, and in turn causes apparent cyanosis in the patient.

#### BLOOD CHANGES

Hemolytic anemia is another dangerous and sometimes fatal poisonous effect of sulfanilamide and sulfapyridine. It comes on from 24 to 72 hours after their administration is begun, and is associated with dizziness, weakness and vomiting. The products of hemoglobin destruction are found in the urine and blood. The best prophylaxis is frequent hemoglobin determinations to detect a possible anemia, plus immediate withdrawal of the drug if there is a sharp fall in the red blood cells. When hemolytic anemia has once developed, the drug should be discontinued at once, fluids forced, and transfusions given. The patient should not again be given sulfanilamide.

Hemolytic jaundice occurs when sulfanilamide has destroyed large numbers of red blood cells, the jaundice being due to the over-loading of the liver with the elimination of hemoglobin pigments. Toxic jaundice, the manifestation of toxic hepatitis, results from the poisonous action of sulfanilamide on the liver. The liver is enlarged, bile appears in the urine, there is a high icterus index, and a biphasic Van den Bergh reaction. Toxic hepatitis is very unusual, and when it does occur, is usually associated with severe dermatitis.

Leukopenia or granulopenia is a severe, dangerous, and sometimes fatal effect of sulfanilamide poisoning. It is caused by the depressing action of the drug on the blood forming tissues. In this condition there is a low total white count, 3,000, 2,000, or even less, with few granulocytes. The chief symptoms are malaise and angina. This effect of sulfanilamide and sulfapyridine therapy is not surprising, for these drugs, like amidopyrine, contain the benzene ring, and it is well known that poisoning by benzene and many of its derivatives produces leukopenia or granulopenia.

As Tedder<sup>5</sup> has pointed out, sulfanilamide produces a wide variety of skin lesions, including purpura, erythema, scar-

latina, exfoliative dermatitis, and allergic sensitization. Photosensitization of the skin may occur, eruptions appearing only on the areas which are exposed to sunlight.

#### TREATMENT OF TOXIC EFFECTS

Physicians who advocate the use of sulfanilamide and sulfapyridine usually advise that the drugs be continued and pushed in spite of the common toxic effects, and that they be discontinued only if symptoms become alarming and severe. According to McGinty, Lewis and Holtzclaw<sup>6</sup>, mild toxic symptoms can be relieved by the use of nicotinic acid, in 50 mg. doses three times a day. If this observation is generally confirmed, it may be that some of the milder and merely disagreeable effects of sulfanilamide and sulfapyridine can be controlled by the administration of suitable doses of nicotinic acid. It would seem doubtful, however, that this therapy could prevent the more serious toxic effects of sulfanilamide and similar drugs.

#### CONCLUSIONS

It is evident, therefore, that sulfanilamide and sulfapyridine are so potentially dangerous that, in spite of the enthusiasm of both laity and profession, restraint and conservatism should characterize the attitude of the physician who employs these valuable but toxic drugs. At present their routine use in all cases of infection seems unwarranted. It would seem wiser to restrict them to the cases in which the outlook is not good. If the outlook is good, the danger of their use may exceed the risks of the infection. To use sulfanilamide and sulfapyridine freely and indiscriminately will all too often result in severe, dangerous poisoning, and, at least now and then, will eventually result in a fatality.

#### REFERENCES

1. Domagk, G.: Ein Beitrag zur Chemotherapie der Bakterellen Infektionen, *Deutsche med. Wochenschr.*, 61:250, 1935.
2. Lockwood, J. S.: Observations on mode of action of sulfanilamide and its application to surgical infections, *Ann. Surg.*, 108:801, 1938.
3. Thatcher, D. S.: Sulfanilamide: Its pharmacology, toxicology and therapeutic applications, *Marquette Med. Rev.*, 3:93, 1939.
4. Long, P. H. and Bliss E. A.: Para-amino-benzene-sulfonamide and its derivatives: experimental and clinical observations on their use in treatment of beta-hemolytic streptococci infection, *J. A. M. A.*, 108:32, 1937; Toxic manifestation of sulfanilamide, *Ann. Surg.*, 108:808, 1938.

4. Gross, P., Cooper, F. H. and Lewis, M.: Urinary concretions caused by sulfapyridine, *Proc. Soc. Exp. Biol. and Med.*, 40:448, 1939.
5. Tedder, J. W.: Toxic manifestations in the skin following sulfanilamide therapy, *Arch. Dermat. & Syphilol.*, 39:217, 1939.
6. McGinty, A. P., Lewis, G. T. and Holtzclaw, M. R.: Symptoms occurring with sulfanilamide relieved by nicotinic acid, *J. M. A. Georgia*, 28:54, 1939.

## DISCUSSION

Dr. Allan Eustis (New Orleans): There is one point I want to bring out. Three cases of fatty degeneration of the liver occurring after administration of sulfanilamide have recently been reported. I was forcibly reminded of this only last week by a patient of mine who was taking prontosil on the advice of a genito-urinary specialist. I made him bring a specimen of urine to the office daily and I watched the urine by Ehrlich's aldehyde test, which is still considered by me an adequate test for liver function. I have seen this man for the last fifteen years and he has never shown a positive aldehyde test. After being on prontosil for several days he showed a strong urobilinogen test. I advised stopping the drug which the urologist did. The next day the patient

was mildly jaundiced. The drug undoubtedly caused damage to the liver.

I want to urge those giving sulfanilamide to keep their patients on a high carbohydrate and a low protein diet, which assists the liver in combating toxic substances.

Dr. H. W. E. Walther (New Orleans): I agree fully with Dr. Brooks. I think we have to divide patients taking sulfanilamide into three groups, namely: children, healthy adults, and old people. Certainly, we cannot give old people the large sized doses we give young, strapping men in their early twenties and thirties. After 45 or 50, I doubt whether anyone has a normal liver. And because this is a white tablet, we sometimes forget we are dealing with a dye, and that it has to be handled by the cells of the liver. We know in treating old people, where sulfanilamide is indicated, we can give small doses, and of course watch the patients carefully. I think the therapy of aged patients is still not receiving the attention it deserves. And here is one point in sulfanilamide therapy (whether in the aged patient or in the patient with a damaged liver) you have to exercise proper caution.

## EMOTIONAL FACTORS IN DISEASE\*

T. A. WATTERS, M. D.†

NEW ORLEANS

Emotions were probably one of man's earliest possessions. They diffuse throughout the organism and serve to integrate and regulate organs, organ systems and their functions, bringing all these part structures and part functions into a state of oneness or unity, whereby the human organism as a whole can meet a situation quickly and effectively. One of the earliest situations man had to face was danger, threat of harm or destruction, demanding defense or offense. Herein lay the importance of a central, dynamic, energizing affect, hence fear and its accompanying physiologic processes, which led to attitude and preparedness, or further, to action such as flight or fight. Emotions served in a like manner

with regard to obtaining food, and in connection with those important processes that constitute reproduction of the species. The emotions, then, are deeply ingrained, and tied up with those deeply rooted biologic urges and needs we call instincts.

As time passed and man became more civilized, he developed symbols such as words, thoughts and ideas, carrying both personal and group meanings. With symbolization his more primitive emotional reactions gradually became modified in character and effect: Primitive man could and did give free rein to his emotions as they arose, but modern man cannot do this without social excommunication. Nevertheless, their force and power remained and throughout the centuries they have been the innersprings of the personality. Emotions in the average person today do not react so violently but exist over a longer period of time, wearing off more slowly; not as fear, but as anxiety, apprehension and worry; not as open hostility and physical aggression, but as indignation, resentment and grievance bearing; not as sex stirrings and action in the crude sense, but in the yearn-

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†From the Department of Medicine, Division of Psychiatry, of the School of Medicine, Tulane University of Louisiana, New Orleans.

ing, desire and the highly differentiated sexual cravings and imaginations we see today. The resultant stirrings and tensions and their effects are only too often mistaken by patient and physician for symptoms or signs of "organic" disease.

Primitive man's fear of harm to his body has remained in his descendants, but the latter's knowledge of his body and its functions make it quite a different matter, because of the wealth of imaginative resources from which he has to draw. He hears legitimate physicians discuss health and physiology over the radio, and reads their health columns in the daily paper. In the libraries he finds countless books about human disease and disorder. Therefore, when his body, its functions and its health are endangered he becomes uncertain, worried and apprehensive, and the physician does well to take this into consideration. He should at least ascertain what the patient's emotional life is, his knowledge of his disorder and his attitude towards it, towards his physician and towards the proposed work, whether surgery, drugs, electrical gadgets, or plain hocus pocus. The old time family physician understood this and he was certainly far from being a poor psychiatrist. He looked upon his patients not just as bodies but as live persons, and as a rule knew the setting in which they were born, and their lives from conception on. He could very easily recognize the emotional factors at work because he knew the background of the complaint, the family, the home life, and the many jealousies and grievances therein. He knew the individual's aspirations and disappointments, and consciously and conscientiously studied and interpreted his patient's personal and interpersonal problems and the symptoms of his disorder with their meaning and purpose. He was thus in a position to administer sound advice, encouragement and reassurance, his healthful stimulation guiding the patient toward more wholesome objectives in life. This is mental healing. Thus he utilized rapport, suggestion, ventilation and analysis and interpretation of difficulties, and sought to reconstruct, readjust and re-

habilitate. His psychologic armamentarium was most certainly not limited to evisceration, prescription of bromides, electrical currents, cajoling and back-slapping, and I do not believe any of you will deny the reputation of this great man as a student of human nature, of medicine and of healing.

On the surface it might seem unnecessary to emphasize the importance of emotional factors in disease to a group of modern physicians, but observation and study prove the contrary. The following cases are used to illustrate this point.

The first is an interesting case with orthopedic implications:

#### CASE REPORT NO. 1

The patient is a 29 year old woman, mother of two children, complaining of weakness and inability to walk, and previously diagnosed as having peripheral vascular disease. When our surgeons could not substantiate this they requested a psychiatric consultation. When I first saw her she was the picture of woe and passive distress, unwilling even to try to stand or walk. She was emotionally immature, insecure and pent up, and obviously had been brooding. As rapport was established she revealed an array of troubles, experiencing considerable relief from the ventilation and showing coincidentally more ease in manner and movement.

She had run away from home at 15 to marry her first husband, by whom she had a child, and all went well until he was killed by a falling tree. She then went to work and was getting along rather well when she married her second husband after a courtship of one or two months. When she bore him a child at the end of a year he openly doubted its paternity and questioned her fidelity. (The patient stated that her husband had philandered but she had not, and it is probable that he was projecting his own unfaithfulness.) He began to drink, cursed her and disavowed any affection for her or the children. He even tried to make her reject her friends and give up her Church and Sunday School activities, the only straws upon which she could lean. She disclosed her troubles to no one and her reaction to her husband's sexual overtures was that of fear and repulsion. Finances grew more strained and the diet became quite deficient. She began to have pains in the legs and avitaminosis may very well have been an important factor. One day her legs hurt very badly and began drawing up, which her physician attributed to "arthritis", although her joints were not swollen, tender or inflamed, and she had no

fever. On being questioned, she recalled that a short time before she had been deeply impressed by the sight of a woman whose legs were drawn up and who had extreme difficulty in walking.

She remained in bed six months, the trouble growing worse. She therefore sought the advice of a prominent orthopedic surgeon, who made a diagnosis of Raynaud's disease and carried out a lumbar sympathectomy, following which two toes sloughed on the right foot. After this operation the surgeon told her that "while she could expect to be improved for a little while, later her feet would have to be amputated, then her legs, and eventually the process might involve her heart."

On physical examination the buccal mucosa and vulva were inflamed and over the neck and back were areas thought by some to be cigarette burns. There was no objective weakness or ataxia and though the gait was shaky at first it improved rapidly with suggestion and reassurance. Tendon reflexes and abdominals were increased, but there was no hypertonus. The left foot and toes looked to be contracted and a Babinski-like reaction was found on that side. There were no sensibility changes but her calf muscles were very tender when squeezed. Extensive laboratory work was negative. She responded quickly to a balanced, high vitamin diet, problem analysis and reassurance, and was soon walking about the city like a normal person.

Her condition is considered a hysterical reaction, associated with which might well be structural changes in the nervous system as a result of avitaminosis and bilateral lumbar sympathectomy. Prognosis was held to be poor because of the difficult home situation.

We see here rather clearly how emotions can produce physical phenomena, and how easily a physician can be misled if he thinks only in terms of the body structures rather than in terms of the whole person with a life story. We see the importance of obtaining a good history with all the symptoms, the settings in which they came to life, their symbolic meaning, and the purpose they serve. What could she do but develop some sort of an illness? We also learn the danger of resorting to the knife too quickly, when conservative methods would be more effective. Further we learn something about iatrogenic factors, i. e., symptoms induced or aggravated by the actions, manners or statements of those associated with medical work, physicians, nurses, druggists, and technicians. The

patient may very well have exaggerated what the surgeon told her, but that is beside the point; after all what she infers and thinks is what enters into the emotional reaction inducing and aggravating symptoms.

The following is a case with ophthalmoscopic implications\*:

#### CASE REPORT NO. 2

A 23 year old drug clerk went to an eastern hospital after her home physician had urged enucleation of an eye. She had experienced pain in the left eye for about two years, but in February, 1934, the exact date not recalled, it became quite sharp and severe. She saw a physician immediately and he administered a tablet of some kind and advised the use of a shield. Relief was obtained that afternoon but the pain recurred the next morning along with photophobia. The physician then told her "a muscle was pulling too much" and began using atropine, changing to cocaine when the pain was extreme. A second physician made a diagnosis of pulmonary tuberculosis, although x-rays of the lungs were negative. This caused more worry because the six months' treatment advised would stop her earnings and throw the family on charity. A third physician said she had tuberculosis of the eye, and she concluded that the tuberculosis was spreading. She returned to the first physician very upset and he openly disagreed with the other diagnoses, saying the pain was due to an old scar and the eye should be enucleated. Glass eyes were shown her, and the advantages of one over the other pointed out. She became frightened and ran out of his office.

Let us now get to the significant facts: Previously she had had several illnesses of particular significance. The first was at the age of nine when she suddenly lost her voice and experienced difficulty in using her legs. The condition was attributed to diseased tonsils and needless to say they were removed. After the operation she was unable to move her extremities and had to be turned in bed. The family reported that she was "unconscious" for three days and aphonic for 13. No causative factors could be obtained, but her physician advised the family to keep her out of school for a year on account of rheumatism. A second attack of aphonia occurred several months before the onset of the present disorder when she arrived in New York City alone to attend a meeting of cosmeticians. A physician attributed it to a cold, but she had none, and the following afternoon her voice returned. The next day she lost it again just before the meeting and regained it a short time before it was over. She felt strain and worry had had a great deal to do with it because she had been under tension for several months



following her grandfather's suicide and her mother's illness, during which the latter took too much veronal in a suicidal attempt. She suddenly lost her voice a third time when her employer informed her she had put the wrong drug in a prescription, phenol instead of chloroform, and the customer was threatening suit. Recalling that another store had been sued on the same grounds, the patient developed palpitation and near paralysis of the lower extremities.

The past history revealed numerous neurotic traits during childhood. From the age of seven she had had headaches attributed to bad vision in the left eye. At 11 the left eye seemed to be crossed for the first time, and at 16 she was found to be astigmatic. However, she would only wear her glasses intermittently. She completed high school and spent one and a half years in college, leaving to help her family financially. Thus disappointed and discouraged she obtained work in a drug-store, and after a short time was filling prescriptions at the request of her employer, although she did not want to and was always doubtful about it.

In 1931 she fell in love, becoming engaged in January 1933 and planning to marry in May. Two weeks before her marriage her father lost his job, but she felt hopeful he would soon get work and withheld knowledge of her wedding plans from him until he was employed. When he did not get work she grew discouraged but felt she could not reveal her disappointment to her family. She began to brood but continued to see her fiance, whose overtures produced strong sexual arousals and frustrations and added to her difficulties.

As a thorough physical examination was negative we reassured the girl that she would not lose her eye and urged her to discuss her problems with us further, since she was showing so much improvement to our treatment of them on an emotional basis. We had frequent discussions and urged her to relate all her dreams, making careful notes of all material obtained and searching for leads upon which to plan future interviews. We noticed that whenever we touched upon her work she became restless, the eye pain increased and the voice became weak and inaudible. Problem by problem, conflict by conflict was analyzed and resynthesized until she was slowly but progressively brought to the point where she was questioned about what she was doing when the pain made its onset. At this time she became extremely tense and restless, her voice grew weak, and she finally said with tremendous difficulty, "There are things I have been trying to forget and hoped I wouldn't have to tell you." After some encouragement, however, she brought forth the disturbing content and then abreacted so violently she almost had a convulsion. But the pain and photophobia disappeared and the eye assumed its normal position. Shortly thereafter she began wearing her new glasses, worked out her general problems of adjustment, and re-

turned home. A letter several years later revealed that there had been no recurrence of pain and all was going well.

I know you are wondering about the thought coincident to the onset of pain and closure of the left eye. You will recall that she was dubious about filling prescriptions, especially after her mother took veronal in a suicidal attempt. The prescription she filled incorrectly, using phenol instead of chloroform, was for the physician who prescribed veronal for her mother, and who had upbraided her and threatened the druggist. The day the eye pain began this physician walked into the store in a hurry to get a prescription filled and she was the only one there. With great trepidation she began to fill a prescription for the doctor who had been responsible, so she thought, for her mother's taking an overdose of veronal, and for whom she had already filled one prescription incorrectly. As she looked at the prescription it said veronal. As she looked at the bottle on the shelf it said veronal, the adjacent bottle phenol. She could not bear the sight before her and the associations it provoked. The pain became intense, the eye closed, and all she could think of was veronal and its terrible implications.

I consider this a monosymptomatic hysterical reaction with incidental depression in an insecure girl who from early life had a constitutional deficiency in the visual apparatus.

We find many interesting points here. First of all the history is quite typical of a hysterical reaction and the psychopathology is well shown—the highly emotional episode setting off the affair, the symptom formation and the abreaction. However, the disorder is unique in that it is monosymptomatic, limited to one eye. We are again reminded how utterly foolish it is to treat just legs, lungs or eyes rather than the live person in whom any organ or structure may become involved while in "the service of the personality." The patient's symptoms were symbolic, they stood for something and served a purpose. They were nature's compromise or solution to an intolerable situation on an emotional rather than an intellectual basis. She had bad eyes, a legiti-

mate excuse for not filling prescriptions any more. We see again how easily a physician can be misled into resorting to unnecessary radical or even mutilating measures. Taking something out, taking some organ away from the person, is not always the best rationale. It may be the easiest way but it is certainly not always a guarantee of continued internal peace, harmony and adjustment. Some patients have very definite urges which can be satisfied only through mutilation or evisceration, and I cannot overemphasize the necessity for care in working out these cases of focal martyrdom or, as Karl Menninger so aptly puts it, focal suicide.

Such a patient, whose history is like the above case report, is only too often considered "strange" or "interesting" and allowed to go at that, rather than studied with the aid of simple, practical, though time consuming psychiatric measures. Even worse, it may receive a negative diagnosis, such as "There is nothing wrong physically", apparently on the assumption that the physical examination is a sort of holy of holies, sufficient unto itself. Common sense alone should make us realize that to do justice to a sick person with any completeness and accuracy there can be no such thing as a "physical" or a "mental" examination but only an examination of the whole, living person.

The last case is one with dermatologic implications\* :

#### CASE REPORT NO. 3

This patient is a 32 year old college teacher with eczema, subcutaneous hemorrhages over the legs and arms, palpitation, trembling of the legs with collapse and fear of death, and a basal metabolic rate of +32. Competent specialists could not account for her condition on an "organic" basis and one finally suggested that she seek psychiatric help. The following facts were then obtained:

She was a suspicious, intolerant person of Scandinavian stock whose family was highly charged with maladjustment, temperament, peculiarity and strong likes and dislikes. From early in life she

had had ill defined fears and later on had anxiety attacks when under stress. Gradually she developed body consciousness and great concern about her health. After her father's death, a quarrel with her sister and brother-in-law over the mismanagement of a \$250,000 estate, and the death of her mother, the anxiety attacks became more frequent and severe and appeared to form a vicious circle; the more fear and tension, the more skin manifestations, and vice versa. Then in the midst of it all she received a letter telling her of the death of the family physician from "incurable heart disease." For years she had entertained a fanciful love affair towards this man, thinking of him as the ideal of manhood, never quite getting over his marriage. After his death her condition became more or less fixed, leading to numerous consultations and just as many different opinions. Finally, to use her own term, she "collapsed", could hardly move her legs, thought she was dying, and got up in the middle of the night to make her will. After entering a psychiatric hospital where conservative psychotherapy was practiced, she had some hypnagogic hallucinations and developed more anxiety, marked tension, fear of cancer and brain hemorrhage. She thought her body was falling to pieces and her gastrointestinal tract changing preliminary to death. She felt her family had treated her unjustly, put more emphasis on the fanciful love affair, and progressively became more suspicious that her family and physicians were conniving together. In the face of all this, however, she smiled and showed no signs of any gross discomfort.

Thus we see a twist reaction developing in a set, highly educated, imaginative person who had led a successful but lonesome life, with few social contacts with the other sex. Her stay in the hospital was a stormy one but time and intelligent care brought on great improvement until finally she was able to leave the supervised environment.

This case shows clearly how both internal and external ectoderm can be part and parcel of the same affair, emotional processes making all parts and functions of the person one. It would have been tragic to label this woman dementia precox and throw up our hands with a fatalistic diagnosis and pessimistic prophecy, rather than treat her with the more constructive point of view as a schizophrenic reaction with profound anxiety, rather unnatural hypochondriacal trends and paranoid features. A letter from her cousin some five years later reads

\*These cases were seen while at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital. Permission to use them was very kindly granted by Dr. Adolf Meyer.

as follows: "A. . . has been doing substitute teaching . . . is well and the skin irritation has completely disappeared now for over a year. . . . I feel she is as able as most of us to complete the years left to her in a capable manner."

## SUMMARY

My purpose in this paper has been to bring before you as modern physicians the necessity for an active rather than a passive awareness of emotional factors in health, disease and convalescence, and to urge you to give more consideration to them in the patients who come to you for help. Emotions are at work in every person, whether healthy and happy or sick and sad. Failure to recognize and manage them properly has been costly to us, and to sum it up briefly one might say that the pathologist dealing with the dead body is the only one of us who can with perfect safety close his eyes to emotional factors. More and more physicians are accepting this idea, some as a matter of conscience and ethics, others because they realize that with our changing social fabric and medical horizon the public is making demands upon us which we cannot ignore. Many of our colleagues are urging more honesty within our own ranks before we resort to condemnation of quacks and cults, who after all depend for their livelihood not only on the gullibility of their victims but also on the stupidity of legitimate physicians. However, much of the prejudice of the past will fade and is fading, yielding to the light of knowledge in the new order of medical work. Our motto for the future might well be expressed in the words of Frank B. Wynn, in his *Ten Commandments of Medical Ethics*: "Hold fast to that which is good, but let not the prejudices coming out of the past blind thy vision to the newer truths of medical achievement."

## DISCUSSION

Dr. M. S. Freiman (Pineville): The subject so ably presented by Dr. Watters is a perennial favorite with psychiatrists addressing a mixed group such as this and, well it may be, for it seems to me that no case is more often mismanaged by his physician than the individual suffering from a

so-called functional condition. The reasons for this are not hard to find.

In the first place, many physicians graduate from medical school with but the haziest notion as to the mechanisms involved and with no idea at all as to how to treat such a condition scientifically. The result is that when confronted with a case the physician will overlook the psychogenic factors entirely or else, as Dr. Watters pointed out, he will attempt to achieve a cure by the use of drugs or surgery. We have all seen persons in whom some abdominal organ has been removed because the patient had a constant pain in its vicinity and the physician, despite the absence of physical signs, thought to effect a cure through surgery.

Secondly, the cases presented by Dr. Watters are far more dramatic than one usually encounters and, therefore, one presumes would arouse greater interest on the part of the attending physician. Unfortunately, many psychoneurotics have symptoms that appear trivial and inconsequential; their personalities are such that instead of creating sympathy, they arouse the antagonism of the physician so that rapport can never be established.

Third, there is the time element to consider. Dr. Watters did not state just how long it took to effect cures in the cases he discussed, but I would venture to state that it took hours and weeks of patient questioning before the complexes were brought to the surface, and it is impossible for many physicians with active practices to devote the time necessary to effect a cure in these cases.

Finally, it is quite obvious that all physicians do not have the necessary temperament to achieve success in this type of work. Many are definitely not interested and it would be a mistake to assume that such an individual could accomplish any good handling a functional case.

Dr. Watters said that it is in the province of the general physician and the surgeon to treat these cases, and on that point I agree, with the provision that the physician should be qualified and should have the time necessary to devote to the case. Lacking these, it seems to me it would be kinder of him to turn the patient over to someone who would be capable of handling the case properly. It seems to me that we will never get anywhere until the medical profession as a whole adopts the viewpoint of the psychiatrist. In the medical schools far greater emphasis will have to be placed on the study of mental mechanisms and the manner in which these functional conditions are brought about. It is my contention that this should be done, not with the view of making psychiatrists out of everyone, but because the individual fortified with this knowledge will be a better surgeon and a better practitioner of medicine. If, after he leaves school, he decides that he does not care to treat these functional conditions, he will at least be able

to recognize them and to turn the patient over to someone who will handle him or her properly.

Dr. George N. Furbeck (Mexico City, Mexico): In the first place, how is the general practitioner going to have the time and get the proper training? It can be done, but it takes time.

Second, it is unfortunately almost impossible to get patients to go to the psychiatrist. They resent any suggestion that there may be something wrong mentally and they refuse.

Third, granted we do consider the case as one for the psychiatrist—I have been trying to find the psychiatrist.

Dr. C. S. Holbrook (New Orleans): I am of the opinion a number of these cases are not so complicated that the general practitioner could not work them out. Many of the disturbances, the cardiac neuroses, the gastric symptoms, that are apt to be present and due entirely to emotional disturbances frequently have a very apparent cause, and if one is willing to delve into the history with the patient he can usually go back to the very beginning of things, the very first occasion in which the symptoms came on, and this will generally be found to be a fear reaction. Often the digging up of this mechanism and explaining it to the patient is all that is necessary. There are a number of patients who are quite anxious to get well and who are willing to confess the fact of their neuroses. In these cases, if the physician will give the patient an opportunity to talk and have in mind that these reactions are on the fear basis, and go to the beginning of the trouble, he can often work out the problem, and elaborate analysis is not necessary. The practitioner should devote considerable time to these patients, for seldom will demonstrating the mechanism of the emotional disorder suffice; psychotherapy must continue until the symptoms have been allayed for a considerable time.

Dr. Dean H. Duncan (Shreveport): I think Dr. Watters' paper is of particular interest in a general meeting such as this. It has served to emphasize the role played by emotional factors in the illness encountered in every day surgical and medical practice. As Dr. Holbrook has said in his discussion, I believe that a very large number of patients presenting symptoms of illness resulting from emotional disorder can be satisfactorily managed by the general physician or surgeon. This necessitates, of course, an attitude of approach which takes into account the entire situation and the patient's reaction to it. In most functional disorders, as so-called psychoneuroses, a prolonged program of analysis is unnecessary provided proper attention is given to the complaint factor and a careful longitudinal investigation of the individual is carried on during the history taking. In this way, the various reactions of a patient, and the situations in which he has attempted to adjust in various periods of his life, may be learned. Once a satisfactory patient-physician relationship has

been established, patients are usually quite ready to discuss the various stresses which have existed, provided they sense an attitude of understanding, interest and helpfulness in the physician. The patient, in this way, is led to understand himself and the emotional reactions which have led to symptom formation.

Dr. J. P. Sanders (Caspiana): I wish to say a few words in regard to the general practitioner, especially in the rural districts. I think we, as rural practitioners, find many of the things Dr. Watters described, and we either correct or avoid them. There are two or three reasons for that. First of all, we avoid the stress and strain that you have in the larger cities, the emotional factors. These cases Dr. Watters brought to our attention had conditions in the family life that were not adjusted, conditions in the economic situation that could not be adjusted. The general practitioner has seen the patient from birth, has seen him grow up, treated him for his colds, his flu and childhood diseases. We are in the home constantly and we see these strains develop. It is up to us as the advisor of the family to take care of this patient, to get him to see these factors and avoid them.

I believe mental hygiene is on the increase and we are trying to find these patients early, in the grammar school and in the high school. How are we going to cure them? That is very expensive and takes a lot of trouble. We are not specialists, but it occurs to me that if we could handle these patients under private physicians, then we could avoid a great many emotional factors by talking over these factors with the patient. We see them all the time in the country as boys and girls of grammar school and high school age. They come to us and discuss these matters. There we get in our best work by threshing out little things that become big things later on in life.

As to the training of the doctor himself, I know personally that they did not teach us enough about psychiatry in medical school. When I got out of school I had a conglomeration of knowledge I could not put together. We should consider that more, and then, of course, in the hospital internship we should have a month or six weeks in active training in this work under competent men.

Dr. Donovan C. Browne (New Orleans): It certainly is instructive to hear a presentation such as Dr. Watters'. There remains, however, one note of caution which should be stressed. It is particularly true in my work in gastrointestinal diseases that emotional factors play a large role, yet it must be borne in mind that although the predominant picture may be emotional, these individuals may also have organic breakdown. I am sure that the recent work of Chester Jones is significant in this respect. Let me urge that these patients be given the benefit of careful examination before emotional factors be accepted.

Dr. T. A. Watters (In conclusion): Dr. Freiman has raised the practical question of time, and reference to the three cases in my paper will answer him most concretely. The first patient, who had trouble in her legs and difficulty in walking, was straightened out in about four or five hours of therapeutic discussion. It took about four or five weeks to straighten out the second patient, who was in a psychiatric hospital, and I would say offhand that about 20 hours were given to direct therapeutic discussion. The last patient was hospitalized seven or eight months with innumerable hours given to direct "psychotherapy." Her condition, however, was a much more serious and less plastic maladjustment.

I wrote this paper with the definite feeling that the general practitioner can do good psychiatry, and this I still contend. However, he must obligate himself to know more and more about modern psychiatry and its terminology, and "psychotherapy" and the concepts and technics upon which it rests. Just as the general practitioner can be a relatively good surgeon, so can he be a relatively good psychiatrist, and the more I see of some of these gentlemen the more I respect them for their ability along these lines. Psychiatry is not a mystery, and neither is "mental" healing, and much will be done to blot out incompetence and recklessness in this work when more time and attention are given to it in medical pedagogy. Dr. Freiman is certainly correct when he says that medical schools need to give it more serious consideration.

Dr. Holbrook's statements in regard to the general physician doing this work are pertinent, and of course the specialist has his place. This is true in psychiatry as in all spheres of medical work; indeed it will be more applicable to psychiatry than any other branch of medicine until it is taught on a fairer, more equal basis with other subjects.

Dr. Furbeck mentioned the stigma usually attached to "mental" disease. The general practitioner, I believe, can do and is doing much to help us combat this erroneous belief. In Illinois former patients in psychiatric hospitals have formed an organization for the express purpose of correcting this state of affairs, sponsoring radio talks by competent physicians and getting out a most interesting publication. Their efforts thus far have been quite successful.

Dr. Duncan's points are well taken and so are those of Dr. Sanders. The later has a wholesome attitude and sound point of view upon which to build a well seasoned knowledge of "mental" therapeutics.

And last but not least, Dr. Browne's remarks carry a wise word of advice. We must always look for "organic" disease, and this point drives home again the necessity for being first a physician and then a psychiatrist. I might add here that the psychiatrist is never forgiven for overlooking organic disease, although the reverse is not true. Only too

often a physician fails to pick up incipient psychiatric disorders and allows serious problems to develop. I constantly remind my students that they must never forget the possibility of brain tumors, or infections, and urge continual vigilance and acceptance of the fact that a patient must be studied as a whole. This same point of view makes us more conscious of emotions and what they can do if we are studying the patient with, or for, organic disease.

---

## DIAGNOSTIC SURVEY OF THE ALLERGIC PATIENT

NICHOLAS K. EDRINGTON, M. D.\*

NEW ORLEANS

A vast amount of experimental, theoretical and clinical literature has accumulated during the past two decades on the subject of allergy. On account of its confusing terminology and various theories to explain the symptom-complex of allergic diseases, the average clinician is perplexed and utterly at a loss to make practical use of the known facts and their application to the subject of immunology and clinical medicine.

Allergic diseases, however, constitute a group as distinct in their etiology as the bacterial diseases. As, in the past, it has been necessary to study bacteriology to understand better the infectious diseases, so today we must not neglect the study of allergy in order that we may have a comprehensive understanding of its many and varied manifestations. The importance of acquaintance with the subject of allergy is based upon the consideration that the symptoms of the allergic reaction may occur in any part of the body. For this reason, though the field of allergy is, in a sense, a highly specialized one, an understanding of the subject and the methods of diagnosis is of importance to every physician, no matter what his specialty is, or wherein his interest lies.

Various estimates reveal that from 7 to 10 per cent of the population suffer from one or more manifestations of allergy, while

---

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 26, 1939.

a much larger number of persons have experienced at some period of their lives a temporary, or mild allergy, which is often difficult to elicit, except by careful questioning. The list of diseases due to allergy is constantly growing and the right of some for inclusion is, no doubt, open to question. None, however, will dispute that true hay fever, allergic or vasomotor rhinitis, allergic bronchitis and a great majority of the asthmas are distinctly of allergic nature. Most cases of true migraine and many cases of atopic eczema (especially in children), urticaria, angioneurotic edema and gastrointestinal upsets are due to food or some other allergen. Many cases of arthritis, gall and urinary bladder pain, frequency and enuresis have an allergic etiology. It may be readily seen that there is a vast army of allergic people awaiting our increasing interest in them.

#### DIAGNOSTIC OBSERVATIONS

The diagnosis of allergic diseases presents no particular difficulty. In many cases the diagnosis has already been determined by the patient or his friends. The allergist is consulted in an attempt to determine the specific causative factors in a case so that relief may be obtained by eliminating these factors from the diet or environment.

Faced with a problem of doubtful etiology, certain diagnostic criteria propounded by Rackemann,<sup>1</sup> may be applied.

"1. A presenting symptom which can be explained by smooth muscle spasm, or by increased capillary permeability.

"2. The occurrence of one or several other manifestations of allergy.

"3. A positive family history of allergy.

"4. The presence of positive skin tests.

"5. The presence of a blood eosinophilia."

The indication that allergy must be considered, depends upon the greater number of these characteristics present in the patient's symptoms. To these criteria may be added the clinical response to epinephrine, which often furnishes a useful therapeutic guide in many cases.

When it has been established that we are dealing with an allergic problem, it is now

necessary to establish the importance of certain specific causative or exciting factors and the secondary or predisposing factors that may have a bearing on the case. For this purpose, we must depend not only upon the history, physical examination and laboratory tests, but also upon specific skin and other tests for allergens, therapeutic trial and certain special examinations when indicated.

#### IMPORTANCE OF THE HISTORY

A detailed and carefully taken history constitutes one of the most important aids in the diagnosis of an allergic disease. In fact, in many instances, diagnosis can be made on the history alone. While the patient is being questioned the necessity for determining the many factors must be constantly borne in mind. Information must be elicited as to the mode and date of the initial attack, which will often bring out valuable clues. Should the description of the attacks be similar, the history of a typical one is sufficient, but frequently the sequence of events is helpful. The time when attacks occur, whether seasonal or perennial is very important in cases of hyperesthetic rhinitis, bronchitis and asthma. Many patients may describe their symptoms as "colds" which sometimes require careful study to determine whether these are true infections or recurring attacks of nasal allergy. The appearance of the mucous membranes during a typical attack readily differentiates the two conditions; the pale bluish grey, swollen turbinates of the patient with allergic rhinitis are in marked contrast with the red, inflamed appearance in cases of bacterial infection. The environment of the patient and the time of day when symptoms first appear should be carefully noted. The duration of the attacks, their frequency and severity and the effect of change of environment and medication will give further information. The amount of relief between attacks is of considerable prognostic value. Careful inquiry should be made to bring out the part that some primary or aggravating factor may play in the case. Thus, an attack of asthma may follow an infection, such as a cold, or

exposure to house dust, animal pets, the use of cosmetics, or the ingestion of certain foods. Occupation and environment of the patient sometimes are responsible for the exciting factors, such as the baker with wheat, the farmer with cattle, horses, chickens and grain dust, the beautician with orris root and cosmetics, dryness, wind or changes in barometric pressure may be important and physical agents such as heat and cold may have some relation to the attack. The length of time the patient has resided in his present quarters and the effect of any recent change should be brought out. Careful questioning should elicit a description of the house furnishings, especially those of the bed room, for the presence of possible allergens may be found in the rugs, carpets, bedding, upholstery of the furniture and contents of clothes closets. The presence of pets, such as a cat or dog about the home and the kind of soaps, tooth powders and cosmetics being used should be disclosed.

The patient should be questioned as to what effect a vacation or a change of habits or environment has on symptoms. Prolonged hospitalization often results in the clearing up of the symptoms of certain allergic conditions due, no doubt, to the removal of the patient from an environment containing the exciting allergen.

A history of the manifestations of allergy in the past, especially in childhood, should be carefully sought. Recurrent colds or cases of bronchitis, urticaria, migraine, cyclic vomiting or eczema greatly assist in establishing an allergic background.

A careful and systematic review of the general health of the patient should be made. The existence of anemia, endocrine disturbances, increased nervous tension, digestive upsets, foci of infection, menstrual disorders and inadequate rest are factors of importance, the consideration and treatment of which is essential to achieve the best results from therapy. Any so-called idiosyncrasy to drugs such as phenolphthalein, aspirin, or quinine, should be looked upon with suspicion, for allergy to certain drugs is probably much more common than is generally supposed.

One of the outstanding facts concerning the allergic person is that he possesses a constitution different from his fellowman. That this allergic constitution is inherited from one generation to another is sufficiently established by the studies of Clarke, Donnally, Coca,<sup>2</sup> Balyeat<sup>3</sup> and others. Studies indicate that what is inherited is not the specific disease itself, but the allergic tendency which makes the descendants subject to become sensitive to anything. A positive family history of allergy forms a very useful criterion in doubtful cases. Investigation of the "family tree" should include at least four generations, the grandparents, the parents, uncles and aunts, brothers, sisters and cousins. A history of "catarrh", sinusitis, bronchitis, hives and eczema in other members of the family, though masked by the patients by other names, should be considered with suspicion.

#### PHYSICAL AND LABORATORY EXAMINATIONS

Allergic patients, apart from their manifestations of allergy, are usually healthy individuals; nevertheless, one should never omit the physical examination. A careful check up should be made of the eyes, nose, mouth, chest and skin. Attention should be directed to the possibility of focal infection in the sinuses, teeth, tonsils, prostate and bronchial tubes. Often it is necessary to differentiate cardiac from bronchial asthma; therefore, the heart should not be neglected in the examination. It is essential to note the general state of nutrition of the patient, nervous state and evidence of any metabolic disturbance.

Laboratory examination of the allergic patient should include the routine examination of the urine, a complete blood count with special emphasis placed on the differential study of the white blood cells for eosinophils. The presence of a large number of eosinophils in the blood smear is additional evidence that the condition being investigated is of allergic origin. Serologic test for syphilis should be made where this condition is suspected. The cytologic study of the nasal secretions in cases of hay fever and hyperesthetic rhinitis is important and may prove a valuable aid in diagnosis. The

classic work of Hansel<sup>4</sup> has shown that the presence of a predominant number of eosinophils distinctly favors the possibility of the condition being allergic. Continued absence of eosinophils, coupled with the presence of a large number of neutrophils, suggest an infection rather than an allergic process. In 1934 Vaughan<sup>5, 6</sup> revived Vidal's "digestive hemoclasia" test, renamed it the "leukopenic index", and has since been advocating it as a diagnostic aid in food allergy. The more recent work of Loveless, Dorfman and Downing<sup>7</sup> showed that postprandial leukopenia was not found to be an index to incompatible foods. In cases where an element of infection is suspected, the erythrocyte sedimentation rate is of some value. The metabolic rate, gastric analysis and additional studies of the blood chemistry are not infrequently indicated. In cases of allergic bronchitis and asthma, routine x-ray examination of the chest should be made to exclude tuberculosis and bronchiectasis. Examination of the sputum for tubercle bacilli is, of course, made in doubtful cases and an autogenous vaccine may be made from the sputum when the symptoms seem largely explainable on a basis of infection.

#### SKIN TESTING

While the diagnosis of allergy in most cases is made on the basis of the history and is confirmed by physical and laboratory findings, it is essential that skin tests be performed mainly in an effort to determine the specific exciting agents. However, reliance on them alone is apt to be misleading. Frequently we hear patients relate that they have had twenty, forty or more skin tests and that "nothing was found." It must be emphasized, then, that if skin tests are to be made, they should be adequate to investigate thoroughly the particular allergy in question. One must remember a positive skin test does not always indicate that the patient is clinically sensitive to the allergen in question. A positive skin test will reveal, not only present sensitivities, but sensitivities existing and persisting from childhood, or may represent future sensitivity. Negative skin tests do not mean that the

patient is not allergic and, finally, the size of the test reaction is not necessarily correlated with the degree of sensitivity.

There has been much written relative to the merits of the scratch and intradermal methods of testing. To secure the best diagnostic results both methods should be used. In cases of pollen sensitivity, it is advisable to use the scratch method first for the pollens and epidermals and some of the more toxic allergens, then recheck with the intradermal tests. In cases of food allergy, the intradermal method of testing should be employed since this method of testing is undoubtedly more sensitive. Intradermal tests, however, give a greater percentage of false or non-specific reactions than do the scratch tests and many reactions are read as positive when they are actually negative. This error can, to a certain extent, be overcome by proper knowledge of the quality and potency of the extracts used and the realization that the reactivity of the skin varies markedly in different patients.

In skin testing, it is not necessary to test each patient with every known allergen. The choice of allergens to be used in a given case depends largely upon the history and upon the condition present. The average patient is tested for reactions to the usual allergens in his environment and diet, making an average of from 150 to 180 tests. The time required is about three hours, which is usually spread out into three or four sittings. Extracts used in testing must be properly prepared and standardized for potency. In reading and interpreting the results of reactions certain standards have been suggested, but it is only through experience and a knowledge of the reactivity of various types of skin that a proper evaluation may be placed upon the reactions. Patch tests are limited in their use, but are of considerable value in cases of contact dermatitis where an external irritant appears to be the etiologic factor. A small amount of the suspected substance is placed on the skin and covered over with a piece of cellophane and adhesive tape. Reactions are observed at intervals of twenty-four, thirty-six and forty-eight hours. A positive reac-



tion reproduces, more or less, the original lesion.

#### OTHER DIAGNOSTIC STUDIES

Ophthalmic and nasal tests are occasionally used when skin tests fail to produce reactions or to confirm the results of the skin tests. These tests, however, are annoying and uncomfortable to the patient.

The passive transfer or indirect method of testing is extremely useful and is especially indicated in very young children, in cases of severe eczema, urticaria or other conditions where suitable areas on the skin are not available and in extremely sensitive or reactive skins. Blood serum is obtained from the patient and the serum injected into test sites on the back or arm of a non-allergic volunteer. After a lapse of forty-eight hours these areas are tested by the intradermal method with the suspected allergen.

In some cases where allergy to foods is suspected and skin tests are negative, or for some reason cannot be performed, the use of elimination diets should be employed. If, following the elimination of some food, the symptoms disappear, only to return when the specific food is placed back in the diet, it is possible to incriminate this food as a possible factor.

X-ray examinations of the sinuses and teeth are of great value in bringing to light foci of infection which may have a bearing on the case. A chest plate made following the intratracheal instillation of iodized oil is important to diagnose the presence or absence of bronchiectasis. In cases of gastrointestinal allergy complete roentgen study of the gastrointestinal tract is valuable to exclude the possibility of organic disease.

In the last analysis, allergy, like most disease, is the result of chemical changes and action in the body tissues. The logical diagnostic approach to the fundamental changes and reactivity of the tissues is dependent on learning more about the chemical state on which allergy rests.

#### SUMMARY

The procedure followed in the diagnostic survey of the allergic patient is outlined and

described. Special emphasis is placed on the importance of a thorough history to establish the diagnosis of allergy, confirmation of which is obtained by the physical findings, skin tests, laboratory study and certain special examinations.

#### REFERENCES

1. Rackeman, F. M.: *Clinical Allergy, Asthma and Hay Fever*, The Macmillan Co., p. 225, 1931.
2. Clarke, J. A., Jr., Donnally, H. H. and Coca, A. F.: Studies in specific hypersensitiveness. XXXII. On the influence of heredity in atopy, *J. Immunol.*, 15:9, 1928.
3. Balyleat, Ray M.: The hereditary factor in allergic diseases, *Am. J. Med. Sci.*, 176:332, 1928.
4. Hansel, F. K.: Observations on the cytology of the secretions in allergy of the nose and paranasal sinuses, *J. Allergy*, 5:357, 1934.
5. Vaughan, W. T.: Further studies on the leukopenic index in food allergy, *J. Allergy*, 6:78, 1934.
6. Vaughan, W. T.: The leukopenic index as a diagnostic method in the study of food allergy, *J. Lab. Clin. Med.*, 21:1278, 1936.
7. Loveless, M., Dorfman, R. and Downing, L.: Statistical evaluation of leukopenic index in allergy, *J. Allergy*, 9:321, 1938.

#### DISCUSSION

Dr. W. H. Browning (Shreveport): There is very little to be added to this splendid discussion, as Dr. Edrington has covered an extensive subject in such a brief and concise manner.

Considerable emphasis was placed on the history, and rightly so. In no phase of medicine is a history more important. The statement was made that the diagnosis is not difficult, which is correct, may I add, if a history is carefully taken. As pointed out in the paper, it is important to obtain facts concerning the allergic attacks, such as time of day, time of year, mode of onset of symptoms, mode of onset of attack, description of attack, environment, temperature changes, and so on. It is then up to the physician to decide what factors are likely to be causing symptoms. The patient's idea of the causative factor or factors is likely to be in error. It is true that one may tell you that the proximity of a horse, cow, rabbit, cat, or dog will produce symptoms. He may go further and tell you that contact with dust will produce symptoms. Beyond these simple facts, one cannot rely on the history of the patient relative to causative agents. For example, a patient sensitive to feathers is likely to suspect a tree close to his window rather than the pillow he is sleeping on. A patient sensitive to wheat is likely to suspect foods that can be tasted when regurgitated, rather than wheat. He may suspect pork, onions, beef, cabbage, beets, and so on. Many such patients will eliminate one food after another from the diet until they are on a starvation diet. Another patient sensitive to wheat may tell you that everything he eats disagrees with him. It has never dawned upon him that he is

eating something at every meal to which he is sensitive. Such details are of little value in the allergic history, except in the first instance to reveal that the patient is having his symptoms at night, and in the second illustration to indicate that the patient is eating some food at almost every meal to which he is sensitive. In the first case, the allergist suspects those things usually found in the bedroom, such as feathers, dust, orris root, wool, and so on. In the second case, he suspects foods that are eaten often, such as wheat, milk, eggs, potatoes and rice. It is then his problem to find these specific agents.

In the paper it is indicated that the color of the turbinates is of considerable importance in the differentiation of allergic rhinitis from bacterial infection. In my experience this has not been true. If the membrane is swollen and pale, one can be sure that the condition is allergic, but if the membranes are red, other methods must be used for differentiation. The nasal smear and the history are of considerable help. Some physicians describe the turbinates as having a strawberry appearance, which they believe is always allergic.

I wish to emphasize what has been said about physical examination and laboratory examinations. Allergic patients may have disabilities other than allergic manifestations. As a matter of fact, these disabilities might keep a patient in a state of allergic imbalance, accounting for a bad result when a good result could be obtained by placing the individual in a good physical condition. In dealing with asthma or hay fever, if infections are found in nose, paranasal sinuses, or tonsils, they should be dealt with conservatively until allergic manifestations are under control.

I wish to add my condemnation to the "Five Dollar" allergic survey. By this I mean thirty or forty tests with extracts of unknown potency by an individual untrained in allergy. The patient usually feels that he has had a complete allergic study and feels that further quest for relief is useless. Such an examination is just as logical as passing a nasal tube into the oral pharynx, aspirating saliva, and claiming that you have done a fractional gastric analysis.

False positive reactions have been stressed from time to time, especially by those untrained in allergy, as a serious handicap to food testing. As a matter of fact, it affords little difficulty, because as stated in the paper, food testing is just a part of an examination. Assuming that such foods are eliminated from the diet, one should then test the foods by clinical trial and if they do not cause symptoms they are left on the diet. No harm has been done.

False negative reactions are troublesome, but fortunately do not occur often if one is using potent extracts and spends some time studying the reactivity of the patient's skin.

As pointed out in the paper, iodized oil may be useful in diagnosing bronchiectasis. It has little place in the treatment of bronchial asthma. It may be of benefit in the treatment of an associated bronchiectasis, but one should be conservative in its use here, because it has been known to produce a lipoid pneumonia. I have films on patients showing large quantities of the oil in the bronchial tree several months after administration. Just what harm will result from this, I do not know, but I am sure that I would prefer not to have it in my bronchial tree. Many patients are sensitive to iodides. I have known of several patients becoming acutely ill as a result of the administration of iodized oil. I also know of one sudden death. If one is to use iodized oil, he should certainly test for sensitivity to iodides before administering it.

In connection with drug sensitivity, I wish to point out the dangers of administering morphine to asthmatics. Balyeat reported five deaths believed to be due to administration of morphine. I have had two deaths from the same cause. This is not because the patients are sensitive to morphine, but because it slows respiration and does not increase the oxygenation of the blood.

Dr. Allan Eustis (New Orleans): I wish to commend Dr. Edrington upon his broad view of allergy, more especially upon his emphasis of the importance of eliminating foci of infection. I would like to elaborate on the last sentence of the paper in which he said we have to know more of the chemical basis for allergy.

In 1912, I was able to produce experimental asthma in the lower animals by histamine. Histamine is formed by the putrefaction of histidine, an amino acid occurring in varying quantities in all proteins. Sturin, the protein of fish, contains 12 per cent histidine and under putrefactive processes will yield large amounts of histamine. Urticaria can be produced by the local application after scarification of the skin with 1:1000 histamine solution.

One should control the diet so that the ingestion of histidine will be limited and prevent the formation of histamine.

Another point brought out by Dr. Edrington was the importance of a thorough physical examination. (Showing slides) Here is a man treated for eighteen months for asthma. You can see he had an aneurysm.

Here is another, the same thing, treated for asthma. Physical examination or x-ray would have cleared up the diagnosis at once.

Here is another patient treated for asthma which is a case of a diverticulum of the esophagus. He had dyspnea and wheezing at night; he did not have the characteristic wheeze of asthma.

Dr. N. K. Edrington (In conclusion): Dr. Browning, in his discussion, has brought out the fact that the appearance and color of the nasal

membranes are at times misleading. Although a swollen and pale membrane is usually indicative of an allergic process, we quite often see a membrane which is red and considerably congested. When one sees this type of membrane one may be sure that he is dealing with an infective process or a combination of allergy and a bacterial infection. Cytologic study of the nasal secretions will in these cases show a great number of neutrophils, but the number of eosinophils will be so increased as to make a diagnosis of allergy almost certain.

Dr. Eustis has referred to the relation of gastrointestinal toxemia to allergy and the possible role that histamine plays in these conditions. Experimentally, histamine when injected or applied to the skin produces reactions similar to those obtained in allergic persons when the specific allergen to which they are sensitive is applied locally or injected. Histamine is prevalent in the tissues of the body and is capable of being produced in the lumen of the intestine and lung and for this reason may play a very important part in the production of the allergic reaction. Histamine, however, cannot be considered as a primary factor as it is necessary that a specific sensitization to some substance be present to bring about the allergic reaction.

In closing I wish to leave this thought with you. In the treatment of an allergic disease as in the case of any serious illness, one must bear in mind the fact that you are treating an individual as well as a manifestation of disease and all factors such as an endocrine imbalance, disturbance of body chemistry and emotional influences should be given careful consideration. A physician who attempts to treat a patient while he neglects all factors, is as unscientific as the investigator who neglects to control all the conditions that may have a bearing on his experiment.

---

## THE EYE AND ITS CARE\*

LEON F. GRAY, M. D.

SHREVEPORT

To begin this paper a brief description of light and the origin of the eye will be made. Light is the agent which, by its action on the retina, excites in us the sensation of vision. Certain objects are termed self-luminous when visible in the absence of all other sources of light, as, for example, the sun, a candle, a glow-worm and luminous paint that has been exposed to light. Most objects are non-luminous, and become visi-

ble from the light received from other objects in return to our eyes. Light travels in straight lines which can be demonstrated in various ways. The term "ray" is applied to the path along which light travels from each point of a luminous object.

It is possible by suitable apparatus to cause the constituent rays in a beam of light to arrange themselves according to their wave length. When thus arranged, they are said to form a spectrum. Somewhere about the year 1675 Sir Isaac Newton shuttered up his window and on a beam of light entering the darkened room through a hole in the shutter, he put a prism in its path; thus was born the spectrum. The short waves in passing through the glass are retarded more than the longer ones and they are therefore deflected at a greater angle, so that all the constituent rays of white light arrange themselves linearly, according to their wave length. Four spectral areas are sharply defined, red, yellow, green and blue; between the red and yellow there is an intermediate orange. The other colors merge into one another and the blue gradually merges through indigo into violet.

### THE GENESIS OF THE EYE

In some unicellular organisms the whole cell body reacts to light without any differentiation or specialization of structure (ameboe). The next step in evolution is to render a part of the undifferentiated protoplasm especially receptive; thus, *Euglena viridis* only responds to light when the anterior part of the cell body is stimulated. The third step occurs in the metazoa, when unicellular animals evolve the multicellular. The subdivision in the cells marks the commencement of intense specialization, with the obvious result that some of the cells in the outer layer become differentiated, so that they acquire a specific response to various types of stimuli.

### THE DEVELOPMENT OF THE EYE

A. *Epithelial Eye of Invertebrates*: The primitive light cell, ectodermal cell differentiated from its neighbors in order to receive incident light and transmit a physiologic impulse can undoubtedly claim to form

---

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 26, 1939.

the first type of eye. This eye can be divided into:

1. *The simple eye*, which may be composed of a single epithelial cell or many epithelial cells. The simple eye may therefore be defined as a single light cell or a group of such cells acting without functional association. The first stage is formed by a single cell; in the second stage a group of five or six surface cells is specialized and the third stage is evident when the epithelium becomes invaginated.

2. *The compound eye*. The highest perfection of the simple eye is an accumulation of many of its kind to form one organ and the provision superficial to this of a common dioptric apparatus.

B. *The Cerebral Eye of Vertebrates*: Intracellular conducting fibrils are present in protozoa, and when metazoa are reached, nerve filaments are commonly associated with the ectodermal sensory cells in coelenterates, an inter-connecting system of cells having the characteristics of ganglion cells which appear between the ectodermal and mesodermal elements making up the different parts of the organism, so that they work together as a unity. Later, this plexiform arrangement tends to become aggregated into ganglia, situated preferentially near the body orifices and other vital parts. When segmentation of the body occurs this system, too, becomes segmented. The ganglion associated with the eyes may now be called the optic ganglion. Thus the eye and the central nervous system are both ectodermal, but the eyes are connected to the central apparatus secondarily.

#### THE HUMAN EYE

The human eye is one of nature's greatest marvels. It gives us sight, the most valuable of all our senses. Through it we gain 85 per cent of our knowledge and control 80 per cent of our actions. The eye performs like a miracle, and surpasses any optical instrument ever made by man. It alone sees and is perhaps the most intricately and delicately constructed organ in the entire human body.

A camera and the eye work alike. You adjust the camera to any distance by mov-

ing the lens nearer or farther away from the recording film. The ciliary muscle, sometimes called the muscle of accommodation, shapes the lens of the eye, and thus focuses the image upon the recording retina.

The camera must be focused carefully in taking close-ups. The lens of the eye does the same thing and when one looks at a man 20 feet away, the normal eye needs no focusing.

#### THE EFFECT OF INCREASING LABORS ON THE EYES

For ages human eyes were used mostly for distance seeing, and there is little if any strain for normal eyes in looking at objects at a distance of 20 feet or more. As the distance between the eyes and the object on which they are focused decreases from 20 feet, the work of the eyes increases.

For many centuries, nearly all labor which required close use of the eyes was done outdoors. But, as refinement of materials and methods has progressed, it has become both desirable and necessary to do more and more work indoors.

Most windows in homes, offices, factories and other buildings fail to provide, at more than a few feet from the windowsill, sufficient light for eyes doing close work. Most artificial lighting is wholly insufficient for eyes doing close work, such as reading.

Less than 500 years ago, few people could read. Then came the printing press, and today few are the people who do not read, and most people read a great deal.

Almost everything used such as, clothes, furniture, newspapers, books and automobiles are the products of work done indoors; much of it by light that is insufficient and injurious. Even in the home, one is most fortunate if he has sufficient light for work or play. It is estimated that less than one per cent of all homes in America are adequately lighted.

By straining the eyes, a strain is put on the body, and the body and brain elicit symptoms of exhaustion as nervousness, headache and indigestion. Squinting, scowling and frowning are all signs of eyestrain.

From birth to death, the eyes are constantly changing. Changing eyes and

changing conditions under which eyes are used, account to a great extent for eye trouble. Not altogether, however, for some defects of the eyes may be due to heredity, to ill health, to accidental injury, or to habitual abuse. The first symptoms of eye trouble should be accepted as a warning.

After diagnosis, the advice may vary from a rest for the eyes to a course of medication, from a change in habits to an operation.

In many cases, glasses are prescribed. The most common optical defects usually lend themselves to correction by the proper fitting and using of glasses.

#### OPTICAL DEFECTS

The optical defects which ordinarily can be corrected or counteracted by means of glasses are:

2. Hyperopia, or far-sightedness.
2. Myopia, or near-sightedness.
3. Presbyopia, or lessening of accommodation, or old age.
4. Astigmatism, or difference in curvature of the eye in its horizontal and vertical meridian.

Evidences of the presence of these optical defects are blurred vision, headaches, eye-aches, digestive disturbances and many other symptoms, both local and general. Lenses frequently relieve these conditions and improve the vision.

#### THE USE OF EYES AND THE USE OF LIGHT

Sight depends on light. Today there are means of providing artificial light which meet every need of the eye and one can have artificial light for seeing that is essentially the equal of daylight.

The quantity and quality, character and color of the light largely determine the degree of visibility. The amount of light required depends on the kind of work one is doing with the eyes, and upon age.

#### SUGGESTIONS FOR IMPROVING LIGHTING

To obtain a better light from floor lamps, table lamps and desk lamps, it is recommended that one follow these rules: In a one-socket lamp, use a 100-watt bulb; in a two-socket lamp, use two 60-watt bulbs;

in a three-socket lamp, use three 40-watt bulbs.

It is not sufficient to have a circle of light on the object on which the eyes are focused. There should be some general lighting, too, for balance. Otherwise, whenever the eyes are shifted, from a bright spot to a dark space, the eye muscles will be strained by the contrast. If you have 20 footcandles of light on your book, you should have at least four footcandles of light throughout the room. For general room illumination, indirect or semi-indirect lamps, either ceiling fixtures or floor lamps, contribute most to eye comfort. Fixtures with shades also may be used, and the shades should prevent glare.

The eyes, generally speaking, meet every test better in bright light than in dim light, and they are more susceptible to injury from underlighting than from overlighting.

#### READING AND WRITING

Considering the vast importance of reading and writing in modern life it is surprising that they have been so little investigated by physiologists and ophthalmologists. The forms of printed types are derived from manuscripts, and have been modified for technical reasons. Further advance has been almost entirely empirical, and even in the best presses more care has been exercised in obtaining aesthetic effects than in fostering legibility.

If we consider ordinary Roman printed characters we find that all capital letters extend above the line. Of the small letters thirteen are short, eight extend above the line (ascending letters), and four below the line (descending letters). There are thus twice as many ascending as descending letters, and in an ordinary page of print it will be found that of the long letters about 85 per cent are ascending and only 15 per cent descending. Examination of the short letters shows that their most characteristic features are in the upper parts. Hence, in reading, attention is specially directed to the upper parts of the letters, as is strikingly demonstrated by covering the lower parts of a line of print with a card. The print is almost as legible as if it were un-

covered. If, however, the upper halves of the letters are covered, it is almost, if not quite, impossible to read the print.

The ends of the lines of which letters are composed are commonly emphasized by means of serifs. These were doubtless introduced empirically, but the advantage in sharpness of definition has a physiologic basis. They counteract irradiation, and hence the visibility of letters is improved if the serifs are triangular.

The tendency of typefounders has been to minimize the differences between letters, probably with a view to greater regularity of line and uniformity in appearance. For example, round letters have been flattened laterally and square letters rounded. The loops of b, d, p, and q, have been equalized to o. If the lower parts of short letters are covered, the similarity in the topmost curves of a, c, e, o, s, of n and r, of h and b, or of n and p, is much greater in modern print than in some early samples.

Legibility is not determined solely by visibility in the physiologic sense of the term. Thus, the emphasis of some lines in letters, which originated in the use of reeds and pens of writing, increases legibility while diminishing visibility. A child learning to read depends upon physiologic visibility; hence there should be little difference between the breadth of the thick and slender strokes. As facility in reading is acquired, legibility is increased by diminishing the breadth of the slender strokes, and as smaller letters are used the diminution must be more rapid than that of the heavy strokes, so that the interspaces may not be unduly contracted. At the same time, the slender strokes must not transgress the limits of visibility at reading distance, and their distribution should be emphasized by suitably formed serifs. Hence, Jaeger small types are more legible than Snellen's.

The spacing of the letters and words has a considerable effect upon legibility. Roughly speaking, the interspace between letters should be at least as broad as the blanks in m or n, but round letters like o and e should have a slightly less interspace than square letters. Javal attributes a large part of

the "remarkable legibility of English books" to the shortness of most English words and the consequent multiplication of blank interspaces. Of course, the spacing of words, and to a less degree of letters, in ordinary printing is very largely haphazard as far as legibility is concerned, the main object of the printer being to obtain general uniformity of appearance with rigid equality in the lengths of the lines. There is some difference of opinion as to whether "leading" or interlinear spacing is beneficial. Owing to the design of the blocks of type there is always a small space between the lower limits of descending and the upper limits of ascending letters, even without leading.

A line of print is read in a series of small jumps. At each pause a group of about ten letters is more or less accurately visualized; the movements are too rapid to permit of visualization while they are occurring. The number of leaps taken by the eye remains the same irrespective of the distance of the book, so long as this is consistent with legibility. A child reading makes more jumps in a line than the average, and the same applies to people reading a foreign language or correcting proofs. Attention is directed chiefly to the commencement of words, and words are not read by letters but by their general configuration. There is, therefore, a very important psychologic factor involved in the act of reading, quite apart from the interpretation of the meaning of the words.

Enough has been said to show that reading is a highly complex act, and the rules which can at present be devised for the avoidance of strain and discomfort involve a multiplicity of factors which have not yet been satisfactorily correlated.

#### BIBLIOGRAPHY

- Starling, E. H.: *Principles Of Human Physiology*, J. & A. Churchill, Ltd., London, 1935.
- Goulden, Charles: *Refraction Of The Eye*, J. & A. Churchill, Ltd., London, 1938.
- Duke-Elder, W. S.: *Text-Book Of Ophthalmology*, Vol. 1, C. V. Mosby Co., St. Louis, 1934.
- Publication of The Sight Saving Council Of Cleveland. *Eyes in Danger*.
- Javal, Louis Emil: *Annales d'Oculistique*, 1879.

THE USE OF AN  
ANATOMICOPHYSIOLOGIC INCISION  
IN APPENDICITIS\*

HENSON S. COON, M. D.

MONROE

No apology is needed for the title of my paper, since appendicitis itself is protean in nature. Appendicitis is killing 65 people every twenty-four hours in the United States, from 20,000 to 30,000 die annually, or more than one-half the number that die from auto accidents. It is taking the greatest toll from our youth and young adults; hence the great economic loss to our country.

Every city, town, and hamlet should institute active educational campaigns to awaken the laity to the dangers of appendicitis and especially the danger from delayed operation, and where purgatives and anodynes have been given. In Philadelphia, it is stated, best results have come from the teaching in grade schools.

The general mortality in the clean cases is less than one per cent, while in the ruptured cases it ranges up to 33 per cent. Incidentally, the United States has the highest mortality rate from appendicitis of any civilized country in the world. It is reported that 20 per cent of patients come to operation after rupture of the appendix and that only one out of seven persons is being saved who have previously been given a purgative and allowed to go on and rupture.

The responsibility can not be all placed on the laity. The physicians are failing to apply common knowledge in a great number of these cases when they use an ice cap and hope with the family that the member will get by without an operation. Procrastination spells death; do not gamble with death.

No set of rules can be laid down for the handling of every case, but the wisest of

surgical judgment, skill and technic will be needed in the difficult cases.

The neglected patients need physiologic aid before institution of any surgical procedure, or what is commonly referred to as the modernized Ochsner regime, or preparation.

Symptoms frequently do not harmonize with pathologic developments and the theory of waiting for stabilization of peritonitis is plausible, but the practice of it is uncertain.

THE INCISION

The incisions I wish to discuss with you are not new and have the names of Elliott, Rockey, Davis, McBurney and McArthur associated with them, namely, muscle separating incisions.

The incision I particularly desire to call your attention to is a modified Davis transverse incision beginning at the lateral border of the rectus muscle on a level with the anterior superior spine, or slightly higher, and extending outward a distance of two or three inches down to the external oblique fascia, which is split in the direction of its fibers and mobilized. Then the internal oblique and transversalis muscles are separated in the line of their fibers and mobilized from the peritoneum, which is then opened in a transverse direction.

To appreciate the value of this incision, it is necessary to recall the anatomy of the anterior abdominal wall. The skin line of cleavage here runs in an almost transverse direction. The main body and strength of the anterior abdominal wall is made up of three long flat superimposed muscles taking origin from the ribs, lumbar and iliac bones, and uniting into one common fascia at the lateral border of the rectus muscle, then separating into one layer in front and one behind the rectus muscle, and extending to unite with its fellow of the opposite side to form the linea alba. The blood and nerve supply to the lateral anterior abdominal wall is derived solely from the intercostal arteries and nerves, as is that of the peritoneum.

It can readily be seen that in this incis-

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 25, 1939.

ion there is no division of important nerves, blood vessels, or muscles, and that due to the triple shutter action of the muscles the wound edges tend automatically to drop together, and there is no trophic disturbance to either the muscles or peritoneum, since there have been no nerves sectioned. The incision is over the center of surgical action, the base of the appendix and cecum in over 90 per cent of the cases; hence there is less trauma and less liability for further spreading of infection in the pus cases. The small intestines are seldom seen, and gauze packing is rarely ever needed, thereby avoiding the essential cause of adhesions. Where drainage is indicated, the same incision can be advantageously used as a dependent site and the wound left open without fear of evisceration, or later herniation.

The cecum is identified and the appendix removed inside the abdomen in most cases without disturbing the physiology of the cecum, or peritoneum. They are kept warm and moist naturally. The incision is not intended for exploration, but can be enlarged either laterally or medially, if the occasion arises, or abandoned if the diagnosis proves to be wrong. It is believed that the advantage of this incision over the McBurney incision lies in its ease of enlargement in the cases where the need arises for greater exposure.

When the patient is only lightly anesthetized, it has been proved that the lateral abdominal pull or tension is from 30 to 50 times as great as it is in the vertical plane. Such acts as coughing, sneezing, or straining, and abdominal distention are much less likely to cause serious postoperative sequelae and less tension on the sutures when the incision is in line with the direction of the greatest pull. Also tight strapping with adhesive tape is unnecessary, and the comfort of patients is aided in that respirations are not limited. The stay in the hospital is shortened, and thereby is the economic gain to the patient. Lastly, the infinitesimal scar appeals to most patients and should not be ignored by the surgeon.

Postoperative treatment in the correct

physiologic use of fluids, and chlorides, as well as decompression, are essential.

#### SUMMARY AND CONCLUSIONS

1. The mortality rate from appendicitis is a national disgrace.
2. Public educational campaigns, especially in the grade schools, are important in getting patients to the surgeon early.
3. Sound surgical judgment, skill and technic in the management of the ruptured cases, is an essential, if the mortality rate is to be lowered.
4. The use of the muscle separating incision has appeared to lessen the sequelae as well as the mortality in the infected cases.
5. With refinement in technic, this incision is physiologically, anatomically, and surgically correct. There is no damage to the integrity of the abdominal wall.
6. Surgery can not compensate for dereliction of the family or physician.
7. There must be a healthy attitude of cooperation between all concerned.
8. A hasty operation can not amend for a delayed diagnosis.
9. A surgeon equipped with a knowledge of the necessary surgical strategy can save more lives in ruptured appendicitis than in any other surgical disease.

#### BIBLIOGRAPHY

- Cutting, R. A.: Transverse incision in 100 consecutive appendectomies, *Am. J. Surg.*, 17:369, 1932.
- Davis, Gwilym G.: *Applied Anatomy*, 5th ed., 1918, p. 414.
- Gurd, F. B.: A specific technique for the treatment of acute perforated appendicitis, *Am. J. Surg.*, 17:52, 1932.
- McGehee, J. L.: Immediate versus delayed treatment of acute appendicitis with rupture. A statistical study, Southeast. Surg. Congress, Atlanta, Ga., March 7, 1939.
- Reid, M. R.: Some remarks on the operative procedures for appendicitis, *Surg., Gynec. & Obst.*, 59:529, 1934.
- Rockey, A. E.: Transverse incision in operation for appendicitis, *J. A. M. A.*, 65:939, 1915.
- Walsworth, J. E.: Appendicitis: A review of a few of the surgical advances of the past months in the handling of same, *Tri-State M. J.*, 5:1018, 1933.

#### DISCUSSION

Dr. D. B. Barber (Alexandria): The essayist certainly went into detail as to the anatomy of the abdominal wall. The transverse incision has its advantages.

There are a few things I want to stress: First, that an early diagnosis is much more essential



than any type of incision that you might use. I want to urge that we make ample incisions no matter what incision we use. Some one has said quite truly, that the incision heals from the sides and not from the end. Let us not make a mistake in trying to leave a little scar and handicap ourselves seriously in trying to do the thing that is the real reason for making that scar, this is removal of a diseased appendix. Make a good incision no matter where you make it. All of you have at some time, I am sure, thought you had an acute appendix and had something else; or thought there was a subacute appendix with redness to the end and found after it was out that it was gangrenous. Bearing these things in mind, we have to be careful. I believe it best to play on the safe side so I always use ample incision. Appendicitis is occurring frequently and in all probability will increase in incidence. I think that the doctor is perfectly right in that we should educate the people, laity and physicians, in the danger of delay.

Dr. Coon (In conclusion): It is an easy matter to start a discussion among surgeons about the advantages and disadvantages of the various incisions used for removing the appendix. Perhaps more credit is due to the attributes of the surgeon than to the incision which he uses. I think the main point is early diagnosis and an attempt to remove the appendix before it has ruptured. Precision in diagnosis will reduce both the morbidity and the mortality by eliminating the penalties of delay. In virulent infections the abdominal wall suffers permanent damage in proportion to the operative damage inflicted at the time of the operation. As I have stated, the mortality is less than one per cent in clean cases, whereas it rises to 33 per cent in ruptured and neglected cases.

—o—

## DIAGNOSIS AND TREATMENT OF DIABETES\*

MANUEL GARDBERG, M. D.

NEW ORLEANS

It is the purpose of this discussion to present as simply and as clearly as possible basic and practical facts which are of importance in the management of diabetes mellitus in the practice of medicine. The management of diabetes is essentially a matter of great simplicity and every attempt will be made to avoid cloaking it in its traditional and false complexity.

### DIAGNOSIS

Diabetes is first suspected when the urine of the patient is found to reduce Benedict's or Fehling's copper solution. The fact that the urine gives a positive test with Benedict's or Fehling's solution is not diagnostic of diabetes. In addition to renal glycosuria, pentosuria, emotional glycosuria, alimentary glycosuria and pregnancy glycosuria, another group of circumstances must be remembered as often being responsible for the positive test with the copper solutions. One is the fact that most patients use for the collection of specimens of urine poorly washed or entirely unwashed bottles discovered in their so-called medicine cabinets. Among these there is a high incidence of those which have contained or still contain mouth washes and cough syrups in both of which reducing substances or glucose itself is present in large quantities. A less frequently guilty circumstance, but one more important because the error occurs in the physician's office or in the hospital itself, is the fact that some of the lubricating jellies used in catheterization and in vaginal examination contain reducing substances in large quantities. Therefore, if catheterized specimens are to be used for examination for sugar, either for diagnostic purposes or during the control of the postoperative or coma case, one must be certain that he uses a lubricant which does not reduce Benedict's solution.

Failure to find sugar in the urine does not rule out diabetes. There are diabetics, particularly of the milder and older groups, who seldom show a positive Benedict reaction, and on whom blood studies must be made in order to determine whether or not diabetes is present. In this connection it is also important to call attention to the fact that the prevailing popularity of the early morning specimen of urine as the material most suited for routine analysis militates strongly against the discovery of diabetes for it is the one least likely to contain sugar, in most cases. A specimen collected about 11 a. m., three hours after breakfast, is less misleading.

\*Read before the Orleans Parish Medical Society May 8, 1939.

The final diagnosis of diabetes mellitus rests on blood sugar studies. In some cases determination of the fasting blood sugar suffices; in others a glucose tolerance test must be done. Contrary to older opinion which placed the upper limit at 120 mgm. per c. c. in non-diabetics the fasting venous blood sugar may reach 140 mgm. per 100 c. c. of blood. Ordinarily if the fasting blood sugar is found to exceed 140 mgm. per 100 c. c., the patient is generally considered a diabetic. Of this practice two statements might be made: (1) In medicine it is generally unwise to adhere too accurately to arbitrary standards of normality; and (2) it is equally unwise to permit an important diagnosis to rest on a single observation or determination of any kind without any other check, particularly if the clinical picture is not very classical, as, in diabetes, it often is not.

If the fasting blood sugar is found to be 145 mgm. or even 150 mgm. the diagnosis of diabetes is not justifiable for the variation from the normal is too small, and might easily be exceeded by the average laboratory error. Secondly, even if the fasting blood sugar is 200, it should be checked at least once, again because of the possibility of the laboratory error. Finally, one should always be suspicious of, and cause to be repeated, all high blood sugars in juveniles and children in the absence of glycosuria, for in these age groups untreated diabetes is practically invariably accompanied by marked glycosuria.

If the fasting blood sugar is 140-150 mgm. or less in individuals showing glycosuria, a glucose tolerance test must be done. Minor confusion exists in the matter of the dose of glucose to be used; some give 50, others 100 gm., while still others use the more desirable 1 gm. per kilo of body weight. In adults this probably is a matter of little importance. In the usual tolerance test blood sugars are made before, one-half hour, one hour, two hours, and three hours after the administration of the glucose. Urine specimens are collected at the same times. In the non-diabetic the venous blood sugar returns to the

normal fasting level within two hours after the administration of the glucose. In the diabetic the blood sugar does not return to the fasting level in two hours and although it may be dropping at this time it may actually be rising in severe cases. At this point it is important to emphasize the fact that the greatest height which the glycemia attains during the test, the so-called "peak level" is a matter of considerably less importance than the duration of the hyperglycemia. This is true because: (1) Ordinarily we never learn the actual "peak" level, the determination of which requires blood sugar estimations at five minute intervals, and (2) many normals reach "peak" levels of 200 or 225 mgm. and yet return to normal within two hours (Peters). They are certainly not diabetic. One might ask why carry the test three hours if the criteria for diagnosis are observed in two? The third hour blood sugar determination often serves as a check on the two hour blood sugar which frequently is the first one which drops below hyperglycemic levels.

As might be expected, borderline curves are at times encountered and repeated observation is necessary before any conclusion can be drawn. It must be remembered, just as in the case of the standard of normal fasting blood sugar, that although the criteria of normality of the glucose tolerance test are derived from a large volume of experience, they still are more or less arbitrary when applied to the individual, and minor variations must be allowed for.

If the glucose tolerance curve is non-diabetic in type, together with the attending urinalyses it will usually aid greatly in identifying renal glycosuria, and alimentary glycosuria, matters outside the scope of this discussion.

#### TREATMENT

In uncomplicated cases the treatment of diabetes is a matter of great simplicity. The aims of treatment are the maintenance of a good state of nutrition, and at the same time the maintenance of as near an aglycosuric state as is compatible with the well-being of the patient.

As far as the state of nutrition is con-

cerned it may simply be stated that the total caloric value of the diet should be such that the individual should lose weight if obese, or gain weight if poorly nourished. Although obesity should be avoided it is doubtful that the old dictum calling for a maintenance of weight at a level of 10 per cent below average normal possesses any virtue whatsoever. It has been suggested, not entirely without basis, that this practice may lead to dwarfism in children, tuberculosis in the adolescent.

In private practice and in the Diabetic Clinic at Touro Infirmary all patients are at first routinely given a diet of 150 grams carbohydrate, 60 grams protein, and 50 grams of fat, for we have found that for average adult individuals in the South, where energy requirements are much less than in the North, this diet furnished sufficient total calories, and sufficient protein. Children usually require more than this if growth is to be maintained, and obese individuals require less if weight is to be lost. Increases and decreases in total calories are generally made by appropriate change in the carbohydrate of the diet. Although the fat may be increased if desired, it should not be decreased below 50 grams.

The diet is generally prescribed in the form of a model menu for each meal, arranged so that sufficient vitamins and minerals are supplied, and the patient is furnished with a list of substitutions for each of the articles of food on the menu. Few patients can or are willing to calculate their diets in terms of grams of carbohydrate, protein and fat. Household quantities are employed; weighing of food constitutes a great burden on the patient and offers no definite advantage as recompense.

A specimen of urine is collected before each meal and at bedtime and each is examined daily with the qualitative Benedict's solution. Since knowledge of the number of grams of sugar in the urine is of no value in determining the severity of the disease or the dosage of insulin necessary, quantitative analyses have been discarded.

If acetone is present, or if the patient

is emaciated, or if the specimens are not devoid of sugar within a week's time, or are not continuing to clear up, insulin is begun. The dose is determined entirely by trial and error, starting with a dose of 5 or 10 units (regular insulin) one half hour before breakfast and a slightly smaller dose one-half hour before supper. These doses are simply increased every two or three days until all four specimens are sugar free. At times a third and fourth dose may be necessary in severe cases. In most cases two doses daily suffice. It will be noted that no mention has been made of the sugar estimations in connection with the treatment. This matter will be taken up more fully in another connection.

After the patient has been sugar free for several weeks it often becomes necessary to reduce the insulin dose. This may be done arbitrarily or at the first sign of hypoglycemia. Unfortunately the first sign of necessity for reducing the dose may be a sudden and rather severe hypoglycemic reaction. The patient should be taught to recognize the early symptoms of hypoglycemia and how to combat them, and he should be advised to communicate with his physician the knowledge of the occurrence of the attack.

Much discussed in the past has been the matter of distinction of hypoglycemic from diabetic coma. Actually all that need be said is that if any doubt exists one should inject 20 to 50 c. c. of 50 per cent glucose into the veins slowly. If the patient awakens shortly, the coma is hypoglycemic. If it is diabetic coma he will not awaken, but no harm will have been done. If he is in the hospital a specimen of blood for sugar determination should be taken before the injection is made, for at times insulin shock induces coma of long duration on an arteriosclerotic basis. However, under no circumstances should the glucose injection be delayed until the blood is analysed.

#### PROTAMINE INSULIN

Practically every feature of the treatment of diabetes either has been at one time, or still is, a subject of great controversy. Protamine insulin is simply the lat-

est of these. One group maintains that protamine insulin, at times supplemented by regular insulin, is applicable to all diabetes; another group finds it only applicable to; (a) mild diabetics requiring only 15 to 20 units of insulin or less, and (b) to a rather small proportion of the moderately severe and severe diabetes. With the latter group of authors my own experiences coincide completely and at present I try protamine insulin on: (a) Mild cases requiring less than 30 units of insulin daily in order to eliminate one of the injections and (b) in patients who require three or four doses of regular insulin (for a few do well). In some of the latter, strangely enough satisfactory control is maintained for a few weeks and then is lost entirely.

I do not subscribe to changing to protamine insulin in persons who do well on two doses of regular insulin, except in a very, very occasional case in which factors peculiar to the individual's occupation or other circumstances make it greatly advantageous that he take one dose of insulin daily if possible. Most of this group of patients, and they constitute the majority of diabetics, remain better controlled, in my experience, with regular insulin. Protamine insulin, even if successful, offers only one advantage; a possible reduction from two injections to one a day. I do not subscribe to the idea that there is any special virtue in maintaining the blood sugar at a low level during the entire 24 hours, even if protamine insulin did possess this alleged property. It must be remembered that no one has ever yet proved that spilling a little sugar occasionally, even every day, is harmful to the diabetic and it must be, by the same token, that rigid control of blood sugar has likewise never been proved to be of any value.

It is this latter consideration which has led most of us, in the practice of medicine, to follow the urine in the control of diabetes and to pay practically no attention to the blood sugar. The estimation of the latter is occasionally valuable when it is suspected that the blood sugar may be falling to too low a level at some particular

time of day. The above statements apply as well to postoperative and coma cases as to the management of uncomplicated cases.

The existence in the literature of such diametrically opposite opinions regarding protamine insulin is a bit difficult of comprehension. Were either based on limited experience this circumstance alone could be invoked as an explanation. As a matter of fact, however, each opinion arises from a wealth of experience. Only one suggestion might be made in this matter: that it is possible that the experience of those whose work is confined to institutional diabetic care and whose follow ups are obtained by letter only, might be expected to be apparently different from the experience of those who live close to their patients and keep them under their own personal supervision constantly or a least for a longer period.

#### SURGERY IN THE DIABETIC PATIENT

While at the present time the diabetic patient is not nearly so poor an operative risk as he was a number of years ago, the idea that he can be operated upon with impunity is very far from the truth. At the time that surgery is required in most cases the person is generally 55 to 70 years of age, presents marked arteriosclerosis, arteriosclerotic heart disease and nephritis and often has hypertension. In addition he often has an enlargement of the liver which may be due to the cirrhosis.

If the surgery is elective the diabetes should be kept well controlled on an adequate diet for ten days to two weeks before the date of operation. If one is not inclined to take Ravdin's work on the importance of glycogen storage in liver function too seriously he should carry out this preoperative preparation at least on the basis that a well-nourished patient is a better operative risk than one who is poorly nourished, as is every uncontrolled diabetic.

Such elective cases properly prepared should not be given infusions and extra insulin the night before or in the morning before the operation. Such a procedure is of no value and it introduces the danger of

insulin shock during or just after operation, an occurrence usually of grave consequence.

If the surgery is not elective a short period of preparation depending upon the urgency of the surgical condition may be allowed, during which by infusion and proper dosage of insulin acidosis at least may be rectified. Often such a procedure is dangerous, and this must be left to the judgment of both internist and surgeon, and the patient is operated on after a moderate dose of insulin is given and an infusion started.

The anesthetics of choice are ethylene and cyclopropane, for these give rise to the least acidosis. Spinal analgesia preferred by some in amputation cases, is in my own experience too often followed by deep shock to be employed except where heart failure or respiratory infection is present.

Postoperatively the patient is given infusions of glucose and saline and sufficient insulin to avoid acidosis. The urine is examined every three hours, being obtained by catheter if necessary. One must be careful to warn interns and nurses that if they must instil something into the bladder following catheterization they should avoid argyrol and potassium permanganate, as both of these interfere greatly with the Benedict tests. Incidentally, in patients receiving large amounts of prontosil a black reaction with Benedict's solution is generally encountered which also destroys the value of the urine analyses. Acidosis and marked glycosuria should be controlled, but the urine should not be rendered entirely sugar free until the fourth or fifth postoperative day. An attempt is made to keep enough sugar in the three-hourly specimens to give a green or greenish yellow reaction with Benedict's solution. This is done by using a three hour administration of nourishment and regular insulin according to a sliding scale based upon the urine examinations. Obviously the scale must be arranged for each case individually; when soft diet can be taken the patient is then stabilized as any other uncomplicated case.

This insistence on the presence of sugar

in the urine during the postoperative period depends upon knowledge of the importance of avoiding insulin shock, which has been known for some time to be extremely dangerous at this time. Insulin shock does not simply add to surgical shock when it occurs, but seems actually to multiply its severity and its disastrous effects.

It might be well to point out here that when glucose infusions are given it is impossible to know how much insulin to give in order to "cover" the glucose. This depends upon too many incalculable factors including the rate of flow of the glucose solution. Attempts to "cover" fully such infusions usually fail and it is fortunate that they do. When such attempts are unfortunately successful they generally lead to severe insulin reactions as soon as the infusion is stopped. When giving infusions to these patients one should not attempt to "cover" the glucose they contain, rather, one should attempt to be careful not to cover it.

Late in the postoperative period, especially in patients with infections or in which much tissue has been ligated or cauterized, the insulin requirement may drop rapidly as healing occurs. Such patients must be watched very closely and insulin dose changed at the slightest indication of insulin reaction.

The frequent necessity for rapid change in insulin dosage, together with the uncertainty of retaining nourishment at this time, is sufficient basis for opposing the use of protamine insulin in postoperative cases.

#### SUMMARY

An attempt has been made to outline briefly the practical aspects of the diagnosis and management of diabetes mellitus. Discussion of complications has been avoided because of lack of time.

#### DISCUSSION

Dr. S. Chaille Jamison (New Orleans): Dr. Gardberg has made so many practical observations that he does not leave a great deal for discussion, but perhaps there are some things we can emphasize.

He has pointed out that the mere reduction of copper solution does not make a diagnosis of dia-

betes, especially if this occurs only occasionally. He has also pointed out that the lack of a reducing substance in the urine is not evidence that the patient has not a hyperglycemia, a point that gives us a great deal more trouble, especially in the older group. I think it is safe to say in reference to the younger group of individuals, under 35, if we examine different specimens during the day and the urine reduces those substances constantly, we are certain to be dealing with a true case of diabetes. On the other hand in the group over 35 and especially in the group past 40, if we console ourselves with the dictum that because the urine does not reduce a copper solution, especially morning urine, that this individual has not diabetes, we are taking a risk of a serious mistake.

Now, a word about protamine zinc insulin. I regret to say that I have persuaded a good many of my diabetic patients to switch to protamine zinc. I have regretted it and they have regretted it. I have come near to losing one life and I certainly feel that protamine zinc insulin should be used very rarely and only in the very mild group of diabetic patients. I think that we will see the time when it will be discarded entirely.

Dr. Gardberg spoke of the rigid control of the blood sugars. In the older group, I believe that we make a great mistake when we attempt to be too meticulous in this regard. As long as my diabetic, in the old group, has a blood sugar of less than 150 I am satisfied.

We have to deal with the problem of surgery of diabetics, which should be divided into three classes. First of all we have to deal with the known diabetic who is to have an elective operation. In my opinion, that individual should be rigidly controlled. He should furthermore not have an anesthetic by the respiratory route if this can be avoided. He should have no anesthetic likely to interfere with ingestion of food. This is not always possible but with modern anesthesia you can feed that patient properly and give insulin at the same time.

The next type of case is the diabetic who is subjected to trauma or emergency operation and it is only found at the last minute that that individual has advanced diabetes. Certainly in these cases it should not be our purpose to attempt to control the hyperglycemia or glycosuria. All we should do in these cases is to control the acidosis. In the course of three or four days after the patient has come out of shock and so forth, we then begin an attempt to control the hyperglycemic state on account of the healing of the surgical wound.

The other type of surgical case is the neglected diabetic or perhaps the diabetic who becomes arteriosclerotic and develops gangrene or infection. That brings up a question too big to discuss at the present time. It must be said though that where infection exists in this type of diabetic that the hyperglycemia and infection run hand in hand

and usually we can not control the diabetes at all satisfactorily until the infected tissue has at least been thoroughly drained and all sloughs removed.

Finally in closing, I would like to say one word about bicarbonate sodium injections. We have been told for years to avoid bicarbonate injections. I believe that is a mistake. There is no quicker way and in many instances no more life saving procedure than the injection of 500 c.c. of bicarbonate solution. It will snap the patient out of deep coma more promptly than anything else I know, then you can proceed with control by insulin.

Dr. Allan Eustis (New Orleans): I wish to second what Dr. Jamison has said regarding the injection of bicarbonate of soda. I have, before the advent of insulin, seen diabetic patients in coma get up before you could even finish the injection of bicarbonate of soda. It does promptly overcome coma but before the advent of insulin, patients would lapse again.

One other point is in reference to glycosuria. In this city especially, an individual who has had a cup of strong, black coffee will often show reducing substances in the urine. Caffeine reduces copper solutions but the action may be due to a soluble glucoside that passes through unoxidized. Time and again we have found urine reduces Benedict's solution after the individual has had strong coffee. We should be on the lookout for that at all times.

Dr. Alfred Jacoby (New Orleans): In 1906 I was in consultation on a case and we then used sodium bicarbonate with success.

Dr. Manuel Gardberg (In conclusion): The only thing I would like to say in closing the discussion refers to the use of protamine zinc insulin, which at the present time is a matter of great controversy. Possibly the majority of the authorities state that protamine insulin should be used on every diabetic patient. There are of course dissenting opinions which are probably as important but these American authorities are almost insisting on the use of protamine zinc insulin in all patients and they are reporting that they have had failures in only a small percentage of the cases. These men, I believe, work entirely in institutions and I do not know how long they follow the cases individually. I do not know whether they have these results or apparent results simply because these patients are not followed long enough or if the results are actually obtained. I think that it stands out that their basis of insisting on the use of this material is that it is supposed to keep the blood sugar at a level closer to the normal fasting during the entire 24 hours of the day than does the regular insulin. Now, even if that were true, and according to our experience it is not, it is difficult for me to reconcile the principle on which the practice is based with the fact that these same individuals

use as their standard of control the appearance daily in the urine in 24 hours as much as 10 per cent of the carbohydrate intake of 24 hours.

Lawrence and Graham, in England, are at the present time advocating very strongly that the diabetic not be kept sugar-free and that the urine should contain some sugar during the day. They think that keeping these patients rigidly controlled is an error. Joslin is following this. It is impossible for me to understand how an individual can insist on protamine zinc insulin because it keeps blood sugar down during the entire 24 hours, and use as a standard of control, at the same time, the appearance in the urine of as much as 10 per cent of the carbohydrate intake.

Most diabetics get along on two doses of regular insulin a day. The only disadvantage is that they have to inject themselves twice a day. This is really not a tremendous hardship if the individual is trained correctly. I do not mean by this only training in the mechanics of hypodermic injections, but also the psychologic training. These people should be taught that they are as much like their fellowmen as possible. The difference between their lives and the lives of others must not be emphasized; one should encourage them and point out to them the many ways in which they may care for themselves. They must be shown that the diabetes is not such a great burden. The discomfort of the hypodermic injections should be minimized as much as possible. The same individual who objects to having to take these injections of insulin does not object at all to pulling a dull razor over his face and cutting himself in shaving, an operation that is certainly more painful and requires more time and trouble than insulin. This should be pointed out to these patients.

---

### THE MANAGEMENT OF DIABETIC ACIDOSIS AND DIABETIC COMA IN A GENERAL HOSPITAL\*

H. J. FRACHTMAN, M. D.

NEW ORLEANS

Diabetic acidosis and diabetic coma are medical emergencies just as surely as is acute appendicitis a surgical emergency. Patients who are treated early, properly and adequately give gratifying results and those that are neglected almost invariably end fatally.

A knowledge of the underlying physiologic principles will enable the physician to

handle these cases intelligently and reasonably.

In the presence of disturbed carbohydrate metabolism, fat metabolism becomes abnormal. Instead of the complete oxidation of fats to carbon dioxide and water, harmful intermediate products, the so-called "ketone bodies", are formed, namely, beta hydroxybutyric acid, acetoacetic acid and acetone. Hyperglycemia is but another manifestation of the disturbed carbohydrate metabolism and in itself is harmful only in a physical rather than chemical way, namely, by increasing dehydration.

The two organic acids, beta hydroxybutyric and acetoacetic, first upset the buffer mechanism of the blood, making the blood relatively acid, and then if their production continues unchecked, combine with the fixed alkalis and still further deplete the alkali reserve of the organism. Acidosis and dehydration depress the cerebrum and lead to stupor and coma; they stimulate the respiratory center and hyperpnea results; they disturb the circulatory mechanism both centrally and peripherally, and circulatory collapse may occur.

Dehydration is due to the spilling of the excess glucose in the blood through the kidney and to the elimination of the sodium salts of the organic acids by the same route. A large amount of water is required to keep these substances in solution and the water must come primarily from the blood stream and ultimately from the tissues. Polydipsia and polyuria are the clinical symptoms, and the withdrawal of fluid from the blood stream and tissues is responsible for the soft eyeballs as well as the rapid weak pulse, the low blood pressure, and in general the picture of circulatory collapse that these patients frequently present. An attempt will be made to show how each step in the treatment fulfills a physiologic requirement.

The technic which is advocated is not original, but rather represents an attempt to organize personal experience and observation with the experience and observations of others. The steps are divided into two groups: (1) immediate or emergency, and

---

\*From the Medical Service of Touro Infirmary and the Department of Medicine, Tulane University, New Orleans.

(2) secondary steps to be taken when the patient is started on the road to recovery.

#### FIRST STAGE

1. Blood is drawn and sent to the laboratory for the determination of glucose (fluorized blood) and of the carbon dioxide combining power (serum of clotted blood). The blood level of non-protein nitrogen (fluorized blood) may be of diagnostic value, especially in older individuals, while blood chloride determinations (oxalated blood) are sometimes of interest.

2. As soon as the diagnosis is made, 40 to 60 units of regular (unmodified) insulin are administered subcutaneously.

3. At this time, an infusion (venoclysis) is begun. The solution used is five per cent glucose with one per cent sodium chloride. To each 100 c.c. of solution, 25 to 30 units of unmodified insulin are added. The rate of administration depends on the circulatory status and the age of the patient; in circulatory collapse, the rate should be faster, while in the aged, the rate should be slower.

4. External warmth in the form of hot water bags and blankets is applied.

5. Gastric lavage is of value as a prophylaxis against acute dilatation of the stomach and to remove undigested food material.

6. An enema or colonic flush is indicated in the presence of obstipation.

7. If the blood pressure is low or falling, and the pulse rapid and weak, circulatory stimulants are administered. These include caffeine sodio-benzoate gr. viiss (0.5 gm.), ephedrine sulfate gr.  $\frac{3}{4}$  (0.05 gm.), epinephrine mviii-mxvi (0.5-1 c.c.) of a 1:1000 solution or one ampule of coramine. These drugs are given parenterally and repeated as indicated.

8. Insulin (unmodified) is repeated at half hour or hourly intervals in doses of 20-30 units, according to the response of the patient. The interval between the injections is lengthened as the patient begins to respond.

9. In order to supply the lost fluids and electrolytes, the intravenous administration of glucose and sodium chloride is continued

until the patient is well out of danger and able to take adequate fluids by mouth.

10. The urine is examined for sugar and ketone bodies at regular, frequent intervals; for example every two hours. As long as the patient is unable to void, catheterization is carried out. Even though dextrose is being administered by vein, a progressive decrease in the amount of urinary sugar as determined by the Benedict test indicates that a favorable response to insulin is taking place. A diminution in the amount of acetone is of even greater significance.

Two points are worthy of discussion at this stage: first, how much insulin to give, and second, how much fluid to administer intravenously.

As much insulin as is necessary to bring the patient out of acidosis or coma should be given. The amount depends on the individual treated, and on the duration and degree of acidosis. Ultimately the practitioner will have to make this decision himself, but one thing should be stressed; the danger of an insulin reaction in a patient of this type who is being closely watched is rather remote, and frequent urinalyses are of distinct value in determining the response to insulin. Too many physicians err on the side of under-dosage.

In regard to the administration of fluids, not only must the daily requirement of approximately 3500 c.c. for the average adult be met, but in addition the fluids and electrolytes lost through vomiting, excessive urination and diarrhea must be replenished. The requirement of fluid is fulfilled by the parenteral, oral or combined routes. On every patient a record of intake and output of fluids and fluid excreta should be kept.

In old individuals the ravages of time on the cardiovascular system must not be forgotten. Fluids are given in smaller amounts by vein and at a slower rate so as not to tax an already damaged heart. Insulin is given more cautiously in order to prevent too rapid removal of glycogen from cardiac muscle fibers, a process that may precipitate an acute failure or coronary thrombosis.



SECOND STAGE

The second stage of management is less complicated than the first. When fluids can be taken by mouth, 200 c.c. of coca-cola, orange or pineapple juice (the equivalent of 20 grams of carbohydrate) are given every two hours. Unmodified insulin is given at two hour intervals on a "sliding scale", based on qualitative Benedict tests on the urine. For example, a sliding scale which will serve as a working basis is:

BENEDICT TEST ON URINE	AMOUNT INSULIN TO BE GIVEN
Brick red.....	20-30 units
Orange or yellow.....	15-20 units
Cloudy green .....	5-10 units
Clear green or blue.....	none

This regimen is carried out for 12 to 14 hours, and usually by the end of that time, the patient can be handled as an ordinary diabetic who requires stabilization, and the discussion of this procedure is beyond the scope of this paper.

One step in the above plan may be criticized by some; namely, the administration of a five per cent solution of glucose by vein to an individual already having hyperglycemia. It is felt, however, that an isotonic solution of glucose is not only a convenient vehicle for supplying fluids by vein, but what is more important, a supply of glucose is given which is readily available for metabolism and is a margin of safety against insulin reactions.

There are two "do nots" that should be mentioned: (1) Protamine zinc insulin should not be used because too long a time elapses before it begins to act; (2) hypertonic solutions of glucose or sodium chloride should be avoided for parenteral use because of the possibility of causing further dehydration.

In reviewing some forty odd cases of diabetic acidosis and coma that have been admitted to this hospital, it was found that eight deaths occurred from these causes. The chief precipitating factors leading to acidosis were infections, especially of the respiratory tract, gastrointestinal upsets and voluntary discontinuation of insulin. The highest blood dextrose found was 840

mg. per cent, while the lowest carbon dioxide combining power was 4.7 volume per cent. The largest amount of insulin required to bring a patient out of coma was 1020 units, and this same patient received 8500 c.c. of fluid parenterally in about 30 hours. The smallest amount of insulin which aroused a patient from coma was 50 units. The younger individuals apparently responded more quickly to therapy, all other things being equal. The duration of the acidosis or coma was found to be important as a factor, in that the longer the duration, the more intensive and more prolonged was treatment necessary.

CONCLUSIONS

In the management of the patient with diabetic acidosis and diabetic coma it is important that:

1. Adequate amounts of unmodified insulin be administered.
2. Fluids and electrolytes be supplied, preferably by vein.
3. The circulatory status be closely observed, and the fact be kept in mind that circulatory collapse is probably the most frequent cause of death in diabetic coma.
4. A well trained nursing staff be available for the execution of the plan of treatment outlined above.

---

BACILLUS PYOCYANEUS  
MENINGITIS\*

REPORT OF SIX CASES

ROBERT A. WISE, M. D.†

AND

J. H. MUSSER, M. D.†

NEW ORLEANS

Purulent meningitis due to *B. pyocyaneus* is infrequently observed in the average practice or for that matter in the average hospital. The organism itself is rarely seen in a pathogenic role. When secured on culture, this micro-organism is or-

---

\*Read before the Orleans Parish Medical Society April 10, 1939.

†From the Department of Medicine, Tulane University, and Charity Hospital of Louisiana.

dinarily considered as a contaminant. However, a considerable number of infectious states have been recorded in the literature in which this bacterium was the responsible agent.

#### REVIEW OF THE LITERATURE

Vaugh, Beck and Shelton<sup>1</sup> reported a case of idiopathic *B. pyocyaneus* meningitis in 1931. This is the only such case reported. In their comprehensive review of the literature, and the one by Evans<sup>13</sup> in 1933, it is pointed out that Chaufford and LaRoche<sup>6</sup> in 1917 probably had listed the first case. It developed after intraspinal therapy in a case of tetanus. They pointed out its relatively benign course, the lack of septicemia and the resulting cure. However, in 1932 Ghon<sup>3</sup> reported a case that occurred in Berlin in 1905 secondary to infected spina bifida. Apparently this was the first case of meningitis, without generalized infection, with *B. pyocyaneus*.

*B. pyocyaneus*, according to the three authors quoted above, was found by Castle,<sup>2</sup> in 1893, to be a primary invader in hepatic disease, endocarditis, and meningitis; by Rolly in 1906 in pyelonephritis, perityphlitis, fistula, mastitis and ophthalmitis; by Frankel in 1917 to be present in only 13 cases out of 12,000 autopsies; by Gaucheraud and Piquard in 1928 in the ventricles of the newborn child whose mother had an endometritis; by Chari in 1926 to occur as a meningitis and pericarditis; by Cook who agreed to the above findings in his article in *Abts Pediatrics*; by Abadie and LaRoche in 1918 in a case of meningitis following trauma (patient recovered); by Valls, Polazzo, and Otterleughi (1928) in a case of meningitis secondary to gunshot wound in the spine (recovery after four months); in 1911 by Schlagenhauer who had five cases of meningitis following spinal anesthesia; and in 1924 Kleine and Kock observed a case of meningitis in a three-year-old child who had a local infection in the mouth.

In 1925 Levy and Cohen<sup>4</sup> reported a case of meningitis in a 32-year-old patient with central nervous system lues who recovered after four months of lingering illness. He

was treated by intraspinal autogenous blood serum given on three occasions. They commented on the green color of the spinal fluid.

In 1931 Vaugh et al<sup>1</sup> reported the case of idiopathic *B. pyocyaneus* meningitis with fatal termination after thirteen days' illness. This patient gave a long history of preceding headaches. It is highly probable some one did a lumbar puncture prior to the one done by the authors. No mention is made to the contrary in reporting their case.

In 1934 J. F. D. Shrewsbury<sup>5</sup> reported a case of *B. pyocyaneus* meningitis in a 34 year old woman secondary to spinal anesthesia with percaine. The symptoms began 24 hours later. The patient was discharged and returned fifteen days later with purulent meningitis. Recovery took place in six weeks. The disease was characterized by recrudescence of meningitis and fever. The treatment was repeated lumbar punctures. In this report comment was made as to the low virulence of the organism.

In 1923 Sonnerschein<sup>6</sup> reported a fatal case of pyocyaneus meningitis in a robust man with a course of only eleven days. Abadie and LaRoche<sup>6</sup> treated their patient with autogenous intrathecal serum given three times. Their patient recovered. In 1924 Schneider and Hans' patient recovered in eighty-four days.

In 1936, from this hospital, F. Evans<sup>13</sup> reported three cases of *B. pyocyaneus* meningitis resulting from lumbar punctures. The first patient had symptoms shortly following the puncture and was diagnosed six days later. Death resulted in ten days. The second patient presented severe headaches and fever on the second day following the contaminating tap but the disease was not diagnosed for ten days. Recovery occurred in six weeks. In the third case lumbar puncture was done three weeks before admission to this hospital. Headaches, vomiting and fever did not occur until five days before admission. The patient had a subarachnoid block and spinal fluid was removed from the cistern. The outcome was fatal.

*B. pyocyaneus* has been studied experimentally<sup>7</sup> in animals with the results as follows: (1) Small doses injected into the skin cause abscess formation in the guinea pig and larger doses cause septicemia; (2) the genito-urinary tract is the most susceptible system in the laboratory animal; (3) it is a primary invader in septicemia of chickens and autumnal disease of the caterpillar; (4) in Gay's large volume it is classified as having potentialities as a primary invader when resistance is low and infecting dose is large; (5) this organism is said to form a bacteriophage in infections of fowls.

The authors have recently had four cases of pyocyaneus meningitis develop on their service and have observed two other cases that occurred simultaneously on another service.

#### CASE REPORT NO. 1

J. M., a colored male, 24 years old, entered the hospital because of an increase of the frequency of epileptiform seizures which had been present for eight years.

Physical examination on admission showed a well developed and nourished male without any evidence of meningitis or other physical abnormalities. On the second hospital day spinal puncture was done in the sitting position. The fluid was normal in every respect. On the third hospital day the temperature was elevated and headache was noticed. On the fourth hospital day typical signs of meningitis developed. The lumbar puncture showed cloudy fluid from which *B. pyocyaneus* was cultured and which had a cell count of 3,000, most of the cells being polymorphonuclear leukocytes. The white blood count was 15,400 with a Schilling shift to the left. Blood culture was negative.

The patient soon became delirious; the temperature remained high and he took fluid and food poorly. Prontosil undiluted was given intrathecally, intravenously and intramuscularly. As soon as the patient improved to such an extent that oral medicine could be given sulfanilamide, one gram three times a day, was given daily, along with equal quantities of sodium citrate, for the rest of the hospital stay. Five transfusions were given as a supporting measure. Lumbar drainage was done once or twice daily throughout his acute illness. The first two weeks of the sickness was stormy, with delirium and coma, and recovery was slow. The temperature became irregular, slowly swinging curves, taking a day up and a day down. Several febrile days would alternate with afebrile days. The subjective feelings of the patient were

little altered by the height of the temperature except for increased headache. However the cell count of the cerebrospinal fluid corresponded conversely with the temperature. The patient was discharged after 92 days in the hospital. No epileptiform seizures occurred until the day before discharge. The patient returned three weeks after discharge with jaundice, presumably acute catarrhal, which soon disappeared.

About three weeks later the remaining cases entered the neurologic or medical wards, all on the same floor except C. G. The spinal punctures, which resulted in the development of these five cases, were done within two days by three different interns or residents.

#### CASE REPORT NO. 2

A. R., a 27 year old colored male, was admitted August 11, 1938 and discharged October 23, 1938. Mother stated he had been unusual in his behavior for six or eight months. There was considerable talking to himself, snapping of fingers, increase in temper, withdrawal to himself, and day dreaming. He had complained of chronic headaches all of his life. He was considered as a case of schizophrenia by the psychiatric staff.

Physical examination showed no significant abnormalities. The lumbar puncture done on August 12 was entirely normal. An increase in headache on August 14 was ignored. On August 15 there was an elevated temperature and on August 17 syncope occurred. On August 18 stiff neck and clinical signs of meningitis occurred. Repeated lumbar punctures showed cloudy fluid from which *B. pyocyaneus* was grown. White blood cells were 14,700. The patient was given prontosil intrathecally, intravenously and intramuscularly for three days, then sulfanilamide, one gram four times a day, with equal parts of sodium citrate was given. On August 23 the temperature dropped and marked improvement was noted. For the next two months he was nearly afebrile except for minor elevations, but the spinal fluid was persistently cloudy and the organism could be grown from it readily. Signs of meningeal irritation were absent even during times when there was marked cloudiness of the spinal fluid. The blood culture was negative. Patient was seen one month after discharge and except for psychic derangement was perfectly well.

#### CASE REPORT NO. 3

J. P., a colored male, aged 36, was admitted August 12, 1938 and discharged October 7, 1938. Patient was admitted in coma and status epilepticus. A history of convulsions, typical of idiopathic epilepsy which dated back for ten years, was obtained.

The physical examination showed only scars on head and tongue, a recent cut of the tongue, mild inguinal lymphadenopathy, and a penile scar. On August 13, spinal puncture was done and the findings were normal. On August 18 he complained of stiffness of the neck and headache but symptoms were considered muscular because of previous severe convulsions. On August 19, spinal tap showed cloudy (2200 cells) fluid and typical signs of meningitis were present. He was given sulfanilamide, gram one and a third, four times in the 24 hours. On August 21 the patient received 10 c.c. of prontosil intrathecally. On August 22 a culture of spinal fluid was positive, even though red with prontosil. August 24 sulfanilamide was discontinued; the temperature returned to normal by August 27 and remained so until his discharge from the hospital on October 7. Spinal drainage was also discontinued on August 24 and only an occasional tap for culture was made. Culture of spinal fluid for *B. pyocyaneus* was negative after August 20; blood culture was negative.

#### CASE REPORT NO. 4

C. G., a colored female, aged 29, was admitted to the hospital August 10, 1938 and discharged November 11, 1938. She was admitted to genitourinary ward because of "ulcer" of labia majora. In February 1938 she was admitted with a diagnosis of condyloma acuminatum (luetic) which was inadequately treated. Physical examination revealed a well developed and nourished woman.

On August 14 a lumbar puncture was done; studies showed it to be normal. On August 15 she had a severe headache, chill, fever and no signs of meningitis. On August 15 cloudy fluid (2000 cells) from which cultured *B. pyocyaneus* was obtained by lumbar puncture. Sulfanilamide one gram, three times a day, was given daily with frequent spinal drainage. She was afebrile on August 20. The subsequent course was one of alternating mild febrile periods with afebrile ones. Except for the headache the patient had no signs or symptoms of meningitis throughout her course. She developed a depressive reaction and had delusions of persecution and hallucination of visitation from heaven. She was discharged on the ninetieth hospital day, apparently well. Bismuth was used in treating the syphilis throughout her stay in the hospital.

#### CASE REPORT NO. 5

E. J., a colored male, aged 49, entered the hospital with the story that four or five days before admission he had chilly sensations and a feeling of fever. His left arm and leg became painful and progressively weaker. On the night of admission he had a chill which lasted one-half hour and he fell out of bed on the head but did not lose consciousness. He had recently developed headache in left frontal region, had an epistaxis

the day prior to admission; no previous antiluetic therapy had been received. Physical examination showed a paralysis of left arm (flaccid paralysis) and weakness of left leg. On August 11, blood Wassermann was reported positive. August 12 spinal tap was done; Wassermann positive and pressure normal (cell count not done). On August 13, he had pains in legs and feet; August 14 temperature went up to 102° and he had a chill. The white blood count was 12,500. The lungs were clear. The nurse described the condition of the patient as critical. On August 18 the patient was unable to void. On August 21 the temperature was considered due to malaria and was allowed to go unquestioned for therapy of syphilis.

August 26 signs of meningitis were noted and the spinal fluid was cloudy (6,800 cells). He was given 30 c.c. of anti-meningococcus serum. Patient was given supportive treatment with frequent drainage. From the fluid was grown *B. pyocyaneus*. E. J. progressed steadily downhill, with high temperature, stertorous breathing, Cheyne-Stokes respiration and he expired on August 31.

Autopsy, limited to head, showed that the brain weighed 1340 grams. There was an increase in cerebrospinal fluid, a thick greenish-blue purulent pus under the tentorium cerebelli, over the base of the brain, tip of the temporal lobes and also along some of the cranial nerves, as well as pus in all the sulci of this area. All ventricles were dilated and filled with pus. No evidence of osteomyelitis could be found. Microscopically marked perivascular lymphocytic cellular infiltrations were observed; also no evidence of necrosis within the brain substance. The exudate consisted of polymorphonuclear cells and a few monocytes (an acute exudate). Pathologic diagnosis: (1) meningovascular-cerebral lues; (2) *B. pyocyaneus* meningitis.

This case was diagnosed about two weeks after the disease had begun and the value of early drainage was lost.

#### CASE REPORT NO. 6

J. G., a negro male, aged 36, was admitted on August 8, 1938, to the neurology service. One week later the patient had experienced a severe pain in the abdomen at level of umbilicus, which caused him to vomit. He had been in Charity Hospital in 1934, 1936 and 1938 for bladder stones. He had been given "12 arm shots".

Physical examination revealed the right pupil larger than left, reacting poorly to light. Tenderness was present in the epigastrium. There was a suprapubic scar; prostate small and firm; reflexes normal. A lumbar puncture was done on August 10. On the next day he had headache, fever, neck pain. *B. pyocyaneus* meningitis was considered but a spinal puncture was not done because of the absence of meningeal signs and the findings

of pus in urine to explain the fever. On August 14 he experienced chilliness. On August 18 drainage from suprapubic scar began. He was transferred to a genito-urinary ward. The red blood count was 3,610,000; the total white blood cells were 15,050.

By September 7, on continuous catheterization and sulfanilamide, the patient had improved to the point of desiring to go home. On September 19 he was described as sleepy all the time. On September 22 the spinal fluid (980 cells) showed signs of meningitis. *B. pyocyaneus* was cultured. Spinal fluid was slightly cloudy. September 28 urine was nearly pure pus. September 30 hiccup developed. On October 7 the spinal fluid culture was negative; the cell count was 270 and the fluid xanthochromic. On October 11, coma deepened and he died. Treatment consisted of spinal drainage, sulfanilamide and supportive measures. No autopsy could be obtained.

It was felt that this death was largely a combination of meningitis and infection in the urinary tract. Spinal fluid was relatively clear for the last two weeks before death. This case also shows the ill effects of delayed diagnosis.

#### DISCUSSION

The four patients who recovered were correctly diagnosed within 24-36 hours and drainage by repeated rachicentesis instituted immediately. Sulfanilamide was given intrathecally in the form of undiluted pron-tosil to three of these (1, 2 and 3) immediately. This therapy was stopped shortly (in case 3) before culture was negative or before temperature was down. This patient had the shortest hospital stay of the four, although he was as seriously ill as the others in the early part of his disease.

The two fatal cases were undiagnosed for two weeks or more, although in retrospect it could have been done. It would seem that allowing the exudate to become inspissated and fixed in the subarachnoid space so as to prevent adequate drainage is significant. Also these patients had complicating diseases of a very serious nature, while the four patients who recovered had no handicapping disease.

The spinal fluid in these cases varied in color from a ground-glass through a greenish-gray to orange at the end of the disease. Presumably blood was largely responsible for the latter color although the organism

does produce a yellow pigment. The fluid formed a coagulin within a few minutes and qualitatively had a very high globulin. Sugar was absent. Cell count initially varied from 600 to 6,000.

The organism was identified by ordinary bacteriologic methods and by its production of a bluish-green pigment.

The disease is characterized by a rather sudden onset of headache, malaise, chilliness, pain in legs or neck, stiffness of the neck, chill, fever and typical signs of meningitis. The organism is difficult to find early in the disease on direct smear. After the acute stage, the course is a long one with symptoms of malaise, headache, and fever at times. The fluid remains cloudy even in the afebrile periods. Cases 3 and 4 had periods with clear fluid and a negative culture, only to become cloudy again and grow organisms on culture. The exacerbations of fever are not easily explainable but it is felt that on afebrile days the infection is localized to the crypts and when the fever is present the general spinal fluid is infected by the dissemination of the pus held in the sulci.

The cases reported in the literature with recovery had a long hospitalization, 75 to 150 days. Cures were accredited to auto-genous intrathecal serum in two cases; others to drainage. The four living patients we report were hospitalized 57 to 90 days.

Other purulent meningitides, pneumococcal, streptococcal, influenzal, *B. proteus*, have responded to greater extent more satisfactorily than formerly to sulfanilamide plus continuous drainage by catheter or lumbar puncture; also removal of foci of infection.<sup>8</sup> Continuous drainage by catheter or laminectomy changed recoveries from 8.14 per cent to 14.5 per cent for Furlow and Reynold,<sup>8</sup> before the days of sulfanilamide in meningitis secondary to trauma or foci about the head.

Sulfanilamide is excreted through the meninges in slightly less concentration than is present in the blood (Marshal<sup>10</sup>). The favorable results in hemolytic streptococcal meningitis following the use of sulfanilamide by Long and Bliss<sup>11</sup> and by G. Mitch-

ell<sup>12</sup> suggested its use in these cases. For this reason and the disadvantage of continuous catheter drainage, sulfanilamide and frequent drainage of cerebrospinal fluid by needle seemed the method of choice in the treatment of these patients.

The infection is believed to have been introduced by the lumbar puncture procedure. In all cases the pressure was read with a mercury manometer (the same manometer was definitely known to be used in five cases), while other cases that had lumbar puncture without pressure reading during those few days on the ward did not develop meningitis. Culture of the material used in the procedure was inconclusive. However, it is the opinion of one of us that it was introduced by the manometer, mercury type. The instrument is used unsterile except for a six inch sterile tip near the lumbar puncture needle. After the pressure is raised as in doing the Queckenstedt procedure the spinal fluid may enter the unsterile part of the instrument and as the pressure is released the contaminated fluid may run into the subarachnoid space. This, we believe, is the mechanism of the infection. We now use water manometers.

#### SUMMARY AND CONCLUSIONS

1. Six cases of *B. pyocyaneus* meningitis are reported. Four patients recovered, two died.

2. This type of meningitis runs a rather prolonged febrile course without any characteristic features in the temperature curve and is essentially benign in character.

3. The complaints and the physical findings are comparable to any case of meningitis irrespective of the etiologic cause.

4. No conclusion can be drawn as to the efficacy of treatment.

5. Early recognition and drainage seem to be essential to recovery.

#### REFERENCES

1. Vaugh, W. T., Beck, R. and Shelton, T. S.: Primary *Bacillus pyocyaneus* meningitis. A case with recovery, *Arch. Int. Med.*, 47:155, 1931.
2. Quoted from 1.
3. Ghon, A.: Ein Beitrag zur meningitis durch *Bacterium pyocyaneum*, *Med. Klin.*, 28:654, 1931.
4. Levy, J. I. and Cohen, A. E.: *Pyocyaneus* meningitis after lumbar puncture; report of a case with apparent recovery, *J. A. M. A.*, 85:1968, 1925.

5. Shrewsbury, J. F. D.: *B. pyocyaneus* meningitis with recovery, *Brit. M. J.*, 1:280, 1934.

6. Quoted from 4.

7. Gay, F. P., et al.: *Agents of Disease and Host Resistance*, Charles C. Thomas, 1935. P. 706.

8. Bosman, J. and Perley, A. M.: Reports of patients treated with sulfanilamide at St. Louis Children's Hospital, *J. Pediat.*, 11:212, 1937.

9. Furlow, L. T. and Reynold, F. C.: *Pyogenic meningitis*, *South. M. J.*, 30:624, 1937.

10. Marshal, E. K.: Certain phases of the pharmacologic properties of sulfanilamide, *Med. Ann. Dist. Columbia*, 7:5, 1938.

11. Long, P. H. and Bliss, E. A.: Clinical use of sulfanilamide, *Ann. Int. Med.*, 11:575, 1937.

12. Mitchell, G.: Streptococic meningitis with special emphasis on sulfanilamide therapy, *J. Pediat.*, 11:248, 1937.

13. Evans, Florence: Primary meningitis caused by *pseudomonas aeruginosa*, (*Bacillus pyocyaneus*) *Med. Record*, 144:111, 1936.

#### DISCUSSION

Dr. John H. Musser (New Orleans): I might say first that these cases all came over to the different teaching services after a diagnosis of meningitis had been made, and, as Dr. Wise has indicated, four were on our service and two on the L. S. U. service. I want to thank the L. S. U. physicians for the privilege of combining their cases with ours. I think only one or two things which are of primary importance in these case reports should be accentuated.

The result of treatment illustrates very beautifully indeed the advantages of early spinal puncture, and early and thorough drainage. I think this applies not only to this particular type of organism, but to any type of meningitis caused by any type of organism. If the diagnosis is made early, and if early drainage is instituted, the chances for recovery are very much superior than when the diagnosis is not early obtained.

The other thing which I think is important, and it has taught us a lesson, namely, that the mercury spinal manometer is an instrument fraught with danger and should be used extremely cautiously. As the result of our experience, the mercury manometer has been abolished and the water manometer is now used. The water manometers, as you know, can be thoroughly sterilized, which cannot be done with the mercury manometer.

I want to make just one or two little comments about these patients as I observed them on the ward. For one thing, we thought we had discovered a cure for epilepsy. One negro was having epileptiform attacks, 10-12 a day, before developing meningitis, and then he recovered to all intents and purposes. During this period he never had the slightest evidence of a convulsive seizure. We were quite pleased; we thought that we could give these people with epilepsy *pyocyaneus* meningitis and cure the epilepsy. Unfortunately, the epilepsy returned when the patient completely recovered.

In the patients who recovered, I think of inter-

est is the fact that in spite of their still positive spinal fluid which was not sterile, they had practically no symptoms whatever, looked well, ate well, slept well. Everything went well with them and yet infected spinal fluid, which under ordinary circumstances, could be considered as producing the severe form of this disease, was still present, and yet these negroes were doing very well indeed.

This is the largest series of cases by one or two that has been reported, and as Dr. Wise has indicated, the other cases, except for one, have all been patients who developed the condition probably by contamination.

Dr. George F. Fasting (New Orleans): Since, in a way, I am partially responsible for the spinal fluid cultures, I think there are some remarks which should be made by me and which would be of interest. You will recall that Dr. Wise referred to the cultures of spinal fluids being positive. In no single instance were direct smears of the fluid positive. Even though we did know the spinal fluids would give pyocyaneus in culture, each specimen continued to be negative on smears.

A similar spinal fluid, when submitted to the diagnostic laboratory, is likely to be reported as suspicious for meningococcus meningitis. This discrepancy may in part be overcome if we bear in mind a preceding spinal tap, yielding negative findings.

We are unable adequately to explain the failure of seeing the organisms in smear. There is a possibility because they are so small and represent the "G" forms, they are assumed by some investigators to be a filtrable phase.

There is a known tendency to phage formation in cultures of *B. pyocyaneus*, and this might have ac-

counted for failure to see the organism. Such phages were not in evidence on the plate cultures.

As to the manometer, we had a chance to check this against apparatus used on the wards. There sterility was not satisfactory. Where the fluid is under pressure, little back suction may be expected, but I doubt if this holds under normal conditions. The manipulation of the tip attaching to the needle is no trifling matter. Having observed many contaminated normal spinal fluids, I have made it a point to request that the manometer not be used, if a bacteriologic report is desired of the spinal fluid.

The third point I would like to make concerns therapy. While in some of these cases sulphanilamide may be given credit, repeated spinal taps must be taken into account. The infection remains localized to the central nervous system, its duration is relatively long. It seems fair to assume that true antitoxins may be produced. The invasive capacity of the organism is poor and the use of phage suggests itself; yet it is well to remember that phage action may cause release of endotoxins and cause aggravation if the spinal fluid is not promptly drained.

Another possibility is the cautious use of specific vaccines availing ourselves of intradermal, subcutaneous or even intravenous routes. If it is desired to have different anatomic parts partake in the production of antibodies, theoretically the long duration of the infection permits this attempt.

Specific antisera for some of the toxic elements can be produced. Only experimentation on injecting this intraspinally or intravenously can testify to its merits.



# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Acting Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D., Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

G. C. Anderson, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*

1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

---

## MEASUREMENT OF BLOOD PRESSURE

Taking the blood pressure has become such a stereotyped routine procedure that the average medical man frequently does it as much as a ritual as with thought and intelligence. Once in a while the physician gets into bad habits and neglects certain precautions which make possible the ob-

taining of the true pressure in the artery. Furthermore, the importance of the blood pressure is sometimes neglected. Very frequently it supplies the only definite physical finding which will make the diagnosis. Sometimes variations in the pressure are neglected. Further, there are a variety of ways of obtaining and recording the diastolic pressure. There is no general agreement as to what diastolic pressure is or should be when it is taken by the auscultatory method. Lastly, the immediate condition of the patient is sometimes disregarded.

Because of these several factors which may influence the taking of blood pressure, the American Heart Association and the Cardiac Society of Great Britain and Ireland have published a joint report which points out some of the technical fallacies of obtaining blood pressure. They also recommend methods of taking the blood pressure when there are cardiac irregularities and aortic insufficiency.

This Committee brings out these data: Blood pressure should be taken only after the patient has sat quietly and is physically and mentally at ease. It is immaterial whether sitting or lying. The pressure cuff should be of standard width, at least 12 cm. wide. The stethoscope should be placed over the brachial artery which is located by palpation. It is advisable to take a preliminary reading by palpation. The cuff is inflated relatively rapidly and the cuff is then deflated also fairly quickly. Inflation should go up about 30 mm. above the level of the palpatory systolic pressure and systolic pressure is then recorded at the highest level at which the successive sounds are heard. The pressure should be recorded according to the closest 5 mm. point; thus 125, 130, 140 and so on. The diastolic pressure is obtained by noting the changes in the sound that take place over the ausculted artery. As the pressure falls uniformly the sound is first increased and then gradually decreased, eventually disappearing suddenly. The diastolic blood pressure should be recorded at that point where the loud, clear sounds change sharply



to the dull, muffled sounds. The two Committees are not in accord as to the recording of the disappearance of the sound. Both are agreed that the diastolic pressure occurs when the sounds become dull and muffled. The American Committee believes that also should be recorded the time when the sounds disappear, thus in a patient who has aortic insufficiency the blood pressure should be recorded as 160/50-0, 50 being the true diastolic pressure and 0 representing when the sound disappears. The British Committee thinks that only the tonal changes are a true record of the diastolic pressure. As a matter of fact in this country most men record the diastolic pressure as at that time when sound disappears.

There are one or two other small details which may be mentioned. The mercury manometer should always have the mercury at the level of 0. The aneroid type of instrument should be calibrated against a mercury manometer from time to time. The arm should be free from venous congestion. When the first reading is rechecked the cuff should be completely deflated. When there is auricular fibrillation, only approximate blood pressure findings are possible. Systolic pressure is best recorded as at that time when most of the beats are heard. When there are ectopics they should be disregarded and pressure taken only during the period of regularity. The Committee recommends also that in speaking of the changes in sound that the term points be used instead of phases.

These notes and observations may seem decidedly elementary but even in a commonly used procedure carelessness may bring about results which are inaccurate and not dependable.

---

#### SHOCK TREATMENT OF SCHIZOPHRENIA

When a new remedy is introduced into medicine, if it comes with a certain blare of publicity, it is seized upon by innumerable men as a method of treatment which is almost infallible. This has been done repeatedly in medicine. The first reports are

enthusiastic and uncritical; eventually the thinking man will analyze his and other results and find that unfortunately the method of treatment is not all that it was first believed.

A very splendid example of the above comments is in the shock treatment of dementia precox. Everywhere throughout the country this method has been employed by psychiatrists and statements were published claiming a ridiculously large number of cures. Now there seems to be a reaction to this overstimulated enthusiasm. At the recent meeting of the American Neurologic Association in Atlantic City it was brought out that there was considerable doubt in the minds of many psychiatrists whether there is any value to this method of treatment, whether the shock was induced by insulin or by metrazol. It was claimed that the result was only temporary and following a short-lived improvement the patient was as insane as before and that actually the brain was injured by metrazol. As well known a man as Stanley Cobb of Boston concurred in these observations. Other prominent psychiatrists expressed the opinion that spontaneous cures in institutions are greater in number than those brought about temporarily by metrazol. One of our well known local psychiatrists states that he is not impressed with the results of this treatment.

All these statements point to the fact that one should be extremely cautious; first, in reporting cures of patients who have not been followed for a sufficient length of time, and second, that this method of treatment has become decidedly open to question. Lastly, it should be borne in mind that the treatment is not free from danger and it is an extremely severe procedure.

---

#### TWO DISTINGUISHED PHYSICIANS

Two of New Orleans' most distinguished physicians died within a few hours of each other. They were both men who were strong upholders of organized medicine and men who had made for themselves out-

standing reputations as practitioners and as teachers.

GEORGE SAM BEL

Dr. Bel died Thursday, August 10, as result of coronary occlusion after a very short illness. He apparently was in excellent health and had been working extremely diligently on his plans for the completion of Charity Hospital when he had his attack.

Bel, a native of New Orleans, born January 3, 1872, graduated in medicine from Tulane University in 1893. He soon became connected with the Charity Hospital and Tulane Medical School and for more than thirty years taught in this latter University, retiring with the rank of Emeritus Professor of Medicine after filling the Chair of Medicine for some years. Upon the founding of the new Louisiana State University Medical School, Dr. Bel became head of the Department of Medicine in this institution, which position he held at the time of his death.

Bel was always interested in the Charity Hospital and it might truly be said to be one of his greatest life's activities. He not only was one of the members of the staff for many years but was also on the Board of Administrators, serving under seven governors and acting as Vice-president. In 1936 he became Superintendent and Director of the institution and through his ceaseless energy and splendid intelligence the hospital improved immeasurably in its service to the patients and its important function as an adjunct to the two medical schools. Bel was in good part responsible for the building of the new institution.

As a teacher, Bel was a clear thinker, a splendid talker and an excellent demonstrator. His lectures in physical diagnosis will be remembered by many. As a physician he was one of the outstanding diagnosticians and consultants in the South. He had an enormous practice which consumed much of his time. His keen, often intuitive ability to make a diagnosis made him a very competent physician. He knew what to do after he had established a diag-

nosis so that people flocked to him from far and wide.

In the death of Dr. Bel the State Society loses a man who, in the later years of his life was not quite as active as he was in midlife in the business of the organization. He was a Past President of the Society, holding this position in 1914-15. Not only organized medicine but also a large number of grateful patients will miss this outstanding clinician.

MAURICE JOSEPH GELPI

Dr. Maurice Gelpi passed away on the ninth day of August, after a lingering, prolonged sickness which entailed the inability to carry on his usual activities for the past several years.

Gelpi was born in New Orleans, July 15, 1883, took his preliminary education at Georgetown Preparatory School and graduated from Georgetown University, Washington, with an A.B. degree. He entered Tulane in 1905 and graduated in 1909 with the degree of M.D. He had his internship at the Charity Hospital and subsequently became one of the house officers, in which capacity he served for some years on the surgical staff. His connection at Charity Hospital was maintained for the rest of his active medical life. He was chief of one of the surgical services for years. In addition to these hospital appointments, Gelpi was connected with Hotel Dieu and other hospitals and taught surgery for some years in the Graduate School of Tulane.

From the time he became a member of the Parish Medical Society, he was active both in the Parish and State Society. In the Parish Society he served at various times as secretary, as treasurer, as librarian and he was made president of the organization in 1926. For some years he was a vigorous and valued member of the Journal Committee of the State Society following his term of office as editor-in-chief prior to the appointment of Dr. Walter to this position. His advice and his interest in the work of the Journal made him a particularly worth while member of the committee. He served on other com-

mittees of the state organization and always performed his work conscientiously and intelligently.

A surgeon of repute and reputation, Dr. Gelpi enjoyed a large surgical practice. He

was beloved by his patients and by his innumerable friends. A man of extremely pleasant personality, always cheerful and smiling, his departure from this life will be a real loss to his patients and confrères.

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### HUTCHINSON MEMORIAL CLINIC OF THE TULANE UNIVERSITY OF LOUISIANA New Orleans

Scientific Session conducted by the Department of Urology, Dr. John G. Pratt presiding.

*Survey of Three Hundred and Twenty-Five Cases of Syphilis* (Dr. Frank L. Ramsay, Department of Urology): This survey does not cover all of the patients with syphilis in the Hutchinson Memorial Clinic; there are probably several hundred others that are not included who are, or have been, diagnosed and treated in other departments of this clinic. Three hundred and twenty-five records were reviewed and, of these, 38 were incomplete, that is, sufficient information could not be obtained from the record to ascertain whether or not the patient had syphilis. Incidentally, there were 163 males and 162 females, including the incomplete cases. Omitting the 38 mentioned, we have 287 patients, from which the subsequent data were obtained.

There were 24 patients with primary syphilis which were proved by dark field examination, of these four were females. Two hundred and sixty-three patients had generalized syphilis, being proved by positive serologic tests here and elsewhere, 89 having had a positive diagnosis before entering this clinic. Ninety-six patients had been previously treated and seven of these had no record of a previous serologic test, but a positive one was obtained here.

Ninety-seven patients had complications which required careful observation during treatment. They were as follows: Diabetes mellitus, four; tuberculosis, seven; cardiac disease, non-luetic, 15; cardiac disease, luetic, seven; pregnancy, 34; abortion, one; carcinoma, five; nephritis, two; thyroid disturbance, five; central nervous system disturbance, 17.

One hundred and three spinal punctures were done, of which 18 gave positive Wassermann of the spinal fluid, one patient having had two.

There were only 46 reactions to the treatment given which were noteworthy. Most of these reactions were mild in character, which either caused no interruption of treatment or temporary

suspension of part of the treatment, mainly arsenicals. It is also noted that there were more gastrointestinal disturbances due to mapharsen than to neoarsphenamine in proportion to the number of injections of each. Only eight patients had dermatitis severely enough to discontinue all arsenical therapy, but none were exfoliating in character. There was one case of immediate collapse from which the patient made rapid recovery.

The disposition of these cases is very interesting. Nine died, of which three were carcinoma, one endocarditis, two tuberculosis, and three of cardiac complications. Three were released from the clinic at their own request. Thirty-four, or 11.8 per cent, are now under observation, having fulfilled the requirements of the course of treatment prescribed by the Cooperative Clinical Group, which the Department of Urology follows. Only 28, or 9.8 per cent, are still active in their treatment; 30, or 10.4 per cent, were transferred to other clinics or to private doctors. The sad but true disposition of the remainder of the patients is that 183, or 63.7 per cent, are delinquent in their treatment, having left the clinic for some reason. Fifty-nine, or 32.2 per cent, of the delinquent patients left without having received any treatment whatsoever. Seventy-eight, or 42.6 per cent, left before receiving one course of treatment, that is, twelve arsenicals and twelve bismuths, or its equivalent. Some received one or two injections only and then became delinquent. Forty-six, or 25.1 per cent, left after having taken one course or more of treatment.

In conclusion, I may ask what has happened to these 183 patients, representing two-thirds of this series. Did they leave because of: (1) The idea of having syphilis? (2) Thinking they were disgraced by having syphilis? (3) Ignorance? (4) The idea of long treatment being too much and unnecessary? (5) Rough treatment on the part of the attendants of the clinic? (6) Having had some reaction from the treatment, and did not return? (7) False sense of security after having received some treatment? (8) Lack of personal interest?

The answers to these questions are beyond my scope, but if they can be answered, I think that more patients in the future will receive sufficient

treatment, and not an insufficient amount as in the past and present and be a menace to the public.

Dr. W. E. Kittredge, Department of Urology, discussed this paper, reiterating and emphasizing the chief points brought out by Dr. Ramsay.

*Cardiovascular Syphilis* (Dr. Roy H. Turner, Department of Medicine): The term cardiovascular syphilis, is not the equivalent of cardiac and vascular syphilis, but by custom refers to syphilitic disease of blood vessels which tends to lead, sooner or later, to cardiac or circulatory failure. Actually, the term, cardiovascular syphilis, is largely restricted to disease of the aorta originating about the vasa vasorum. In spite of the fact that the anatomic changes directly due to syphilitic infection are principally to be found in the aorta, there is a pronounced tendency for patients with such pathology to have cardiac or circulatory failure. Cardiovascular syphilis accounts for the second largest group of patients who come to serious difficulties because of the late lesions of syphilis. About 10 per cent of the untreated persons with syphilis develop clinical evidence of cardiovascular disease due to this infection. However, among the patients who die during the late stages of syphilis and come to autopsy, about 90 per cent have been shown, on careful examination, to have lesions which pathologists agree are those of cardiovascular syphilis. In other words, this type of pathology is the rule among syphilitics in the late stages although only about one out of nine or ten give clinical evidence of the disease.

Cardiovascular syphilis is conveniently divided into the following groups: (1) Subclinical; (2) aortitis uncomplicated by aortic insufficiency or aneurysm or both; (3) aortitis complicated by either aortic insufficiency or aneurysm or both; (4) syphilitic myocarditis, which is of such rarity as to be a curiosity. This classification may be further elaborated by a statement as to whether or not the patient suffers from cardiac failure. Of these groups, the first two are the most important due to the favorable prognosis if properly diagnosed and properly treated, and due to the difficulty of diagnosis and the likelihood of harmful effects of improper treatment. A presumptive diagnosis of subclinical syphilis of the cardiovascular system should be made in every patient with latent or old syphilis. This point of view emphasizes the necessity for diagnosing the stage of syphilis and not merely syphilis.

Moore and his associates have laid down the criteria for the diagnosis of uncomplicated syphilitic aortitis; that is, for the diffuse lesion of the proximal portion of the aorta without aortic insufficiency or saccular aneurysm. They have listed the following criteria in the order of their relative importance: (1) Teleroentgenographic and fluoroscopic evidence of aortic dilatation; (2) increased retromanubrial dulness; (3) a history of circulatory embarrassment; (4) a tympanic,

bell-like, tambour accentuation of the second aortic sound; (5) progressive cardiac failure; (6) substernal pain; (7) paroxysmal dyspnea. They believe that in a patient with known syphilis and without organic mitral disease, the presence of any three of these criteria is strong evidence for the diagnosis of uncomplicated aortitis and the presence of any two of them renders the diagnosis probable.

A physician should not undertake the responsibility for treating syphilis without reading carefully Moore's "The Modern Treatment of Syphilis." The principal points in treating cardiovascular syphilis are: (1) That the treatment should be begun gently, preferably with insoluble bismuth and iodides, continued for two or three months before any form of arsenical therapy is used. (2) Patients with congestive failure should receive no treatment of any sort until symptoms of failure have been relieved. (3) Even with a gentle beginning, one should never use big doses of arsenicals nor old salvarsan in small doses at any time. (4) Treatment which has been successful should be continued for long periods.

*Some of the Problems in the Management of Neurosyphilis* (Dr. H. L. MacKinnon, Division of Psychiatry, Department of Medicine): There is probably little excuse for the existence of neurosyphilis. In the first place, as our Swedish friends have shown us, syphilis can be pretty well controlled. Secondly, as Bennett and Lewis have suggested, there are, in all likelihood, definite changes in the spinal fluid early in the course of the syphilitic infection in these cases which later develop neurosyphilis. It is further believed that reversal of these spinal fluid findings by vigorous therapy would prevent the development of neurosyphilis. When this reversal is difficult to obtain such measures as fever therapy might produce the desired result.

The management of neurosyphilis includes three distinct yet closely connected problems. First, there is the problem concerning the extent of the disease process, and how well this can be controlled and modified. Second, there is the question of how much the syphilis has affected the personality of the individual who has acquired or inherited it, and what to do for this. Third, there is often the problem of social readjustment of the individual. The neuropsychiatrist is more interested in the individual who has the syphilis than in the syphilis *per se*.

Probably the easiest and most workable classification of neurosyphilis is its division into meningeal, vascular and parenchymatous types. If it is remembered that the most characteristic thing about neurosyphilis is its dissemination, there is no harm in recognizing distinct clinical entities. Much is to be gained in the matter of prognosis since it is likely that more irreversible damage would be

done by the parenchymatous type than by either of the other two.

There is no routine treatment for neurosyphilis. It is decidedly an individual matter to be handled cautiously. On the other hand, there are a few guiding principles. The meningovascular type lends itself more readily to treatment and the generally accepted form of treatment of this type of neurosyphilis is the administration of several ordinary intensive courses of therapy. Preference for the early courses is usually given to bismuth or mercury with the arsenicals coming later. In the parenchymatous type, the same form of treatment may be used, often in conjunction with malaria or fever therapy. It would seem that these latter two are indicated when chemicals cannot adequately reach the treponemata. However, it is to be remembered that the spirochetes, in deeper structures such as the lymph glands, are heat resistant and a combination of pyretotherapy with arsenicals and heavy metals is usually desirable.

Destroyed nervous tissue does not regenerate. Therefore, the most that can be accomplished by any therapy in neurosyphilis is an arresting of the disease process. Clinical improvement probably occurs in roughly about half of the cases because the strain and toxicity are removed from the damaged nervous tissue.

As to the personality factors involved, it is well known that syphilis of the brain notoriously affects the sensorium. The individuals so affected are disoriented and show faulty memory, as well as lack of judgment and insight. Surely, it is unwise to allow these people to accept responsibility. They are an easy prey for swindlers with all sorts of wild schemes. Although they may not be actually dangerous, they are a liability to their families. They must either be carefully supervised or institutionalized. Even though modern therapy will apparently "cure" some of these individuals, they certainly deserve to be checked at rather frequent intervals.

Once the patient has been treated and it is realized that no more can be done for his disease process, now arrested, the question arises as to his readjustment into society. This is obviously an individual matter. Certainly, one would not enjoy being a director in a company whose head was subject to faulty memory. Nor would one particularly relish the idea of riding sixty miles an hour down the highway in a car whose driver had a marked optic atrophy with greatly diminished visual fields. Therefore, the physician can act as a guide in suggesting the capacities and limitations of the one who is now really making a second "going out" into the world.

As Robinson has remarked, a physician should be interested in illness, not in just disease. For, when a person has developed syphilis, it is one thing to treat his disease, and quite another to realize how his disease affects him and those about

him. It is to be remembered that this individual is a member of a family and a part of the community.

*The Management of Syphilis as a Complication of Pregnancy: Review of Cases from Hutchinson Memorial Clinic* (Dr. J. S. Herring, Department of Obstetrics): All authorities seem to agree that untreated maternal syphilis is one of the most common causes of fetal death in the latter half of pregnancy. It also stands high in the list of causes of abortion occurring early in pregnancy.

The incidence of syphilis in pregnant women varies considerably, depending chiefly on the class of patients examined. Beck states that the average incidence in clinic cases is 6 per cent, and that one per cent of private obstetric cases are syphilitic. Williams gives the incidence in white clinic patients as about 3 per cent, and we are inclined to believe that Beck's higher figure is due to the inclusion of colored patients.

In four-fifths of the cases of maternal syphilis, the initial diagnosis is made on no other evidence than that of a positive serology, but more detailed inquiry will usually elicit a history of a previous lesion or indication. It is important that a positive serologic test for syphilis, accompanied by no other diagnostic evidence, be rechecked to rule out error, but this should be done without delay, as early treatment is imperative in order that the fetus may receive the utmost benefit. In cases of repeated weakly positive tests, it seems best to prove with therapy. The prognosis for the mother, in either treated or untreated patients, is not believed to be affected by pregnancy, but in treated patients the prognosis for the child is greatly improved. In untreated women, each succeeding pregnancy tends to continue longer than its predecessor until at last a living, but syphilitic, fetus is produced. It is believed that in these cases, although the fetus may not immediately show signs of congenital lues, these signs sooner or later develop.

The treatment of the luetic pregnant woman is not varied because of the pregnancy; that is, the treatment following diagnosis is the same as it would be were the patient not pregnant. Pregnancy alone offers no contraindication to antiluetic treatment, but rather is an added reason for it. We will not discuss the routine treatment of syphilis. All authorities seem to agree that adequate treatment during pregnancy will insure the birth of a non-luetic infant in the majority of cases, although the mother may not be cured, and probably will not be. Antiluetic therapy seems definitely to have more effect on the luetic fetus than on the mother. The infants born of insufficiently treated women are usually luetic but are most frequently born alive and respond readily to treatment. Best results are obtained if the treatment is begun in the first six weeks, but this is rarely possible as neither the pregnancy nor the lues is usually diag-

nosed at this time. If treatment is begun and continued regularly before the fourth month, it may be considered adequate from the standpoint of results in the fetus. Treatment that is begun later than the beginning of the fourth month, even though given regularly, is considered inadequate. It is with this in mind that the following analysis has been made of the cases in this clinic: Total number of obstetric patients registered in clinic, 2,702; total number of positive Wassermann in these cases, 78, or 2.9+ per cent; number of obstetric patients delivered and followed-up, 2,033; number of patients with positive Wassermann delivered and followed-up, 23. Of the 23 patients, nine were adequately treated, 11 inadequately treated, and three had no treatment; delivered from these 23 mothers were: 28 living babies, no stillbirths, three abortions. Of the 28 living babies, 20 were apparently normal, eight were apparently syphilitic. Of the 20 normal babies, 12 were of adequately treated mothers, eight were of mothers treated, but inadequately. Of the eight luetic babies, all were of inadequately treated mothers, two of the mothers being entirely untreated. Two of the abortions occurred spontaneously in mothers who were receiving adequate treatment prior to and during pregnancy. The third abortion was criminal, and in an untreated patient.

Two patients were of special interest: One mother found to be luetic early in her first pregnancy and was given adequate treatment. She was delivered of a normal baby. She came to the clinic again for her second baby, having meanwhile discontinued antiluetic therapy. The Wassermann was positive early in this pregnancy, but the patient deserted for three months, then returned for inadequate treatment and delivery of a luetic, living baby. The other case was that of a patient who had pernicious vomiting of pregnancy in the second month, was hospitalized and had a transfusion from a luetic donor. She developed a luetic rash early in the fourth month and received treatment regularly thereafter; although technically she was inadequately treated, she was delivered of a normal baby.

The number of cases surveyed here are too few to make any definite conclusion justifiable. They would seem, however, to be in line with previously stated facts. It is unfortunate that the number of desertions in the luetic group seem to be out of proportion to the total number of cases lost. It is interesting to note that there were no stillbirths in this series, and one is tempted to believe that this, and the low number of luetic babies delivered, are due to antiluetic therapy, adequate or not. Certainly these figures would bear out the belief that antiluetic therapy should always be instituted, no matter to which stage the pregnancy has advanced.

*Hereditary Syphilis* (Dr. Richard P. Vieth, Department of Pediatrics): Syphilis in children

and infants is usually considered to be hereditary or congenital in origin. Acquired syphilis does occur in children but it is relatively infrequent as compared to the congenital variety.

The incidence of hereditary syphilis is difficult to determine because of inadequate morbidity statistics and lack of data for the whole country; it varies greatly with race, social status and education. In hospital clinics, it is generally estimated that from 2 to 3.5 per cent of pediatric patients have syphilis. Jeans and Cooks, in St. Louis, after studying the placentas and cord blood Wassermann reactions in several thousand cases, and after careful follow-up studies of many of the children, concluded that the incidence in the children of the poorer white patients was 1.8 per cent; in the children of wealthier white patients, it was less than one per cent; among negroes it was 15 per cent.

Prenatal deaths and infant mortality from congenital syphilis are high. In almost one-half of the cases of women with untreated syphilis, pregnancy terminates in the death of the fetus or infant. The Cooperative Clinical Group, in a study of 431 patients, found that only 57 per cent of infants of mothers with positive Wassermann reactions escaped the infection, whereas 81 per cent of infants of syphilitic mothers with negative Wassermann escaped. Fetal deaths occur in the latter half of pregnancy, rarely before the fifth month. Syphilis is not a cause of early abortion as has been held in the past. Over one-half of children with syphilis who survive have late manifestations of the disease. Whipple and Dunham estimate that 80 per cent of pregnancies in untreated syphilitic women end disastrously for the infant.

It is now believed, in this country at least, that transmission from parent to child takes place in utero by way of the placenta. Infection of the fetus may occur at any time during pregnancy, but usually takes place in the latter half. There is no conclusive evidence that infection may be transmitted by way of the male sperm. A problem that frequently confronts the pediatrician is the diagnosis of syphilis in the child during the neonatal period. The syphilitic child is usually born without any clinical evidence of the disease; if diagnosis is delayed until symptoms appear, much valuable time is lost. The importance of an early diagnosis is obvious. Just as in adults, the best results of treatment are obtained when treatment is started early. There are several diagnostic procedures which may be employed to detect the disease in the neonatal period. In the beginning, we should demonstrate the disease in the parents; it is obvious that a child cannot have congenital syphilis if the mother does not have it. The diagnosis of syphilis in the parents is not always easy. Stokes states that 69 per cent of mothers and 50 per cent of fathers of syphilitic children show clinical or serologic evidence of the disease. Jeans

and Cooke found 85.5 per cent of mothers and 56.4 per cent of fathers of syphilitic children to have positive Wassermann reactions.

Opinions vary as to the significance of pathologic changes in the placenta and umbilical vein in cases of hereditary syphilis. Ingraham and Kahler believe that syphilitic changes in the placenta indicate syphilis in the mother, but not necessarily in the child. Jeans and Cooke are of the opinion that a syphilitic placenta means a syphilitic child. Examination of the umbilical vein yields valuable information. Phillip and Gornick have demonstrated spirochetes in the umbilical vein in the absence of placental changes. Ingraham found that when the dark field examination of the umbilical cord was positive for spirochetes, the child had syphilis in 100 per cent of cases; but syphilis in the child is not ruled out by a negative dark field.

The question is frequently raised as to the value of the various serologic tests on the cord blood and venous blood of the infant. Fildes first pointed out that transplacental passage of Wassermann antibodies occurred, so that a non-syphilitic child of a syphilitic mother might have at birth a positive blood Wassermann reaction. On the other hand, a syphilitic child may have at birth a negative blood Wassermann reaction. Fildes believes that a positive cord blood Wassermann indicates syphilis in the mother, and not necessarily in the child. Kohner states that a positive cord blood Wassermann reaction means syphilis in both mother and child. Jeans and Cooke found that the cord blood Wassermann reaction corresponded with clinical expectations in 63.3 per cent of cases.

Several investigators, employing the quantitative Wassermann reaction, have reported that non-syphilitic infants with positive Wassermann reactions showed a gradual weakening of the reaction until it became negative, whereas the reactions of syphilitic infants became stronger. As a rule, the Wassermann reaction in a syphilitic child is always positive after the second or third month. The positive reaction in a non-syphilitic child usually becomes negative before the second month. After the age of three months, a positive Wassermann reaction in a child means syphilis in almost 100 per cent of cases.

Syphilis in the neonatal period can frequently be diagnosed by x-ray examination of the long bones. Congenital syphilis produces a fibrosis in developing bones which interferes with blood supply, causing the formation of granulation tissue. Increased calcium deposition without subsequent ossification takes place within this granulation tissue. Caseation and softening with pus formation may occur. Osteochondritis, periostitis, diaphysitis and epiphysitis are the most common lesions. In the x-ray, the syphilitic changes in the bone are characterized by irregular serration of the epiphyseal line, small areas of destruction in the bone, both in the epiphysis and diaphysis adjoin-

ing the epiphyseal line, periosteal reaction usually of the parallel type arising from the diaphysis immediately above the epiphyseal line.

Time does not permit much discussion of the clinical picture of congenital syphilis. As a rule, no symptoms are present until several weeks after birth. Clinical manifestations before the second or third week mean an unusually severe infection. Snuffles and cutaneous lesions are the commonest modes of onset. The skin lesions appear as reddish brown or coppery macules and papules; there may be crusted and scaly lesions. The usual distribution is on the palms, soles, and diaper areas. In severe cases, the eruption may be generalized, with fissures of the mouth and anus. There are splenomegaly and hepatomegaly. Disease of the bones will be found in a fair percentage of cases. Clinically, the changes are characterized by thickening of the ends of the long bones, especially of the radius, ulna, and tibia. Motion at these points is painful and produces the so-called pseudoparalysis of Parrot. The lesions of late syphilis appear usually after the fifth year. They include eye lesions, especially interstitial keratitis, Hutchinsonian teeth, mulberry molars, eighth nerve deafness, saber shins, saddle nose, gummas, neurosyphilis; late involvement of bones: osteitis, periostitis, hydrarthrosis of joints. Cardiovascular lesions are rare.

In our Pediatric Clinic, we employ the continuous method of treatment. Alternating courses of sulpharsphenamine and bismuth salicylate in oil are given for at least a year. Further treatment may be indicated if the Wassermann reaction is still positive. Both drugs are given intramuscularly, the dosage being 20 mg. sulpharsphenamine and 2 mg. of bismuth salicylate per kilogram of body weight. Injections are given at weekly intervals; a course of either drug consists of eight weekly injections.

The prognosis in congenital syphilis varies with the time of onset of treatment, the type of treatment and its duration.

---

J. T. NIX CLINIC

New Orleans

At the meeting held in August, Dr. Lucy S. Hill presented the following paper:

#### THE PRESENT STATUS OF SPINAL ANESTHESIA

This article represents a review in brief of the literature on spinal anesthesia which has appeared in the past six months together with my own conclusion as to the place of spinal anesthesia in the list of possible methods of inducing anesthesia.

Spinal anesthesia is not new. As far back as 1893 the possibilities of inducing anesthesia by the injection of an anesthetic agent into the

subarachnoid space was recognized. By 1899 six successful operations on the lower extremities were reported, cocaine being the agent used. From this time on spinal anesthesia has been employed—the degree of popularity waxing and waning—the technic, agent and amount of agent used varying up to the present time. In contrast to the use of spinal anesthesia for operations on the lower extremities, it is now used in surgical procedure involving the chest.

The technic used varies with different anesthesiologists and, when one has found a technic that is easy and satisfactory to him, it is best to adhere to it rather than try each new technic offered. Spinal anesthesia has been used successfully in obstetrics including cesarean section. Either a hyperbaric solution as novocain may be used with horizontal position maintained for first fifteen minutes or a hypobaric solution as nupercain or spinocain, maintaining the lateral decubitus for five minutes on one side and then on the opposite side for five minutes. The results have been satisfactory in that pain is abolished, uterine contractions are not impaired, and the patient is cheerful and cooperative. In cases of primiparae with prolonged labor, border line pelvis, breech extraction and toxemia, or respiratory cases, delivery is simplified.

The general surgeon finds spinal anesthesia especially useful because of its superior relaxation, absence of irritation in the respiratory tract and small amount of toxic material to be eliminated. Spinal anesthesia is especially useful in operations involving the upper abdomen as gastro-enterostomy, intestinal resection, cholecystectomy. If it is feared the anesthesia will not be maintained for a sufficient period, a combination of novocain and some other longer acting drug may be used, or an inhalation anesthetic may be resorted to, preferably one of the gaseous agents as nitrous oxide, ethylene or cyclopropane.

Several articles regarding spinal anesthesia may be found in the journals each month, with many cases reported, and practically all giving the advantages of spinal anesthesia in various types of surgical operations because of its superior relaxation, ease of administration, and comparatively rapid elimination. Practically every author also stresses the necessity of proper preliminary medi-

cation, definite technic and intelligent observation of the patient during the entire operative procedure.

The possibility and the advantages of combining spinal anesthesia with a general anesthetic such as ethylene or cyclopropane are generally recognized. The absence of psychic trauma and nausea and, in the case of an operation lasting longer than the duration of the spinal anesthetic, the possibility of completing the operation under gas anesthesia without the necessity of starting a general anesthetic in the midst of an operation are considered as distinct advantages by some writers.

In the midst of many favorable reports on spinal anesthesia it is worth while to note an article by Dr. Bernard L. Kahn which sounds a note of warning regarding the influence of spinal anesthesia upon acquired immunity in syphilis. He reports a case in detail of an individual in good health before surgery under spinal anesthesia for a gangrenous appendix. A few weeks after surgery he developed a change of personality, vague pains which grew gradually more exaggerated. After a progressive downward course, during which an exploratory laparotomy under spinal was performed, the patient died. Both blood and spinal fluid gave positive Wassermann reactions.

#### SUMMARY

In closing I should like to make the following observations as to the status of spinal anesthesia at the present time:

1. Spinal anesthesia has found a very definite place in the list of possible methods of anesthesia.
2. The technic of spinal anesthesia has become more definite, the immediate dangers involved clearly understood and the necessity for careful watching of the patient appreciated.
3. The extent to which spinal anesthesia may be utilized has been extended to include thoracic surgery, difficult upper abdominal surgery and difficult labor cases such as cesarean section, version and extraction and breech deliveries.
4. The advantages of utilizing general gas anesthesia with spinal anesthesia are definite and recognized.
5. The routine use of spinal anesthesia without having the patient examined especially as to serologic status of the blood and also as to general physical condition is dangerous.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

### C A L E N D A R

#### PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	



## NOTICE TO OUR MEMBERS

Due to the fact that a number of inquiries from various members of the profession throughout the state have come to the office of the State Medical Society concerning the collection and publishing of biographic sketches of doctors, we deemed it necessary as a medium of information for the members of the State Medical Society to secure a statement from the editor of the "biographical history styled as 'Physicians of Louisiana.'" Obviously the members should thoroughly understand that the Louisiana State Medical Society has not approved or endorsed the plan in any way, form or fashion. Following is his statement:

## STATEMENT

"The biographical history styled as 'Physicians of Louisiana' as being surveyed by the Southern Research Bureau is a private historical document for the consideration of the individual doctors of the state.

"While this is not a society program, the management assures the doctors that they are applying every effort and that it is their utmost desire to make the work fully worthy of its representation, and has invited the President of the Society to appoint a committee for the purpose of reviewing and censoring this work prior to publication, to pass on the quality of workmanship and materials, and to be empowered to disqualify the biography of any doctor they consider unethical in his professional procedure.

"The sponsors have filed detailed information with the President and Secretary of the Society showing that this work was started on April 15, 1939, and report that approximately half of the state has been covered. No charges are being made for the recording of the doctors' biographies as such data are considered essential for the history and all doctors are being urged to supply biographical information in order to have the work as complete as possible.

"The managing editor of 'Physicians of Louisiana' has enjoyed several years of success in assembling and editing biographical and historical documents and desires to dedicate his Louisiana efforts to 'Organized Medical Scientists' for the purpose of promoting a closer relation among the doctors and in order to have a complete biographical recording for reference centers, archives and posterity."

(Signed) ROBERT L. RICE, Editor.

## CHAIRMEN OF SCIENTIFIC SECTIONS

## Bacteriology and Pathology

DR. W. R. MATHEWS  
Shreveport

## Eye, Ear, Nose and Throat

DR. C. L. COX  
New Orleans

## Gastroenterology

DR. M. D. HARGROVE  
Shreveport

## General Surgery

DR. G. W. WRIGHT  
Monroe

## Gynecology and Obstetrics

DR. D. C. McBRIDE  
Alexandria

## Medicine and Therapeutics

DR. T. C. PAULSEN  
Baton Rouge

## Nervous Diseases

DR. H. R. UNSWORTH  
New Orleans

## Orthopedic Surgery

DR. P. A. McILHENNY  
New Orleans

## Pediatrics

DR. R. T. LUCAS  
Shreveport

## Public Health and Sanitation

DR. R. H. ALLEN  
Ruston

## Radiology

DR. STAKELY HATCHETTE  
Lake Charles

## Urology

DR. EDGAR BURNS  
New Orleans

Anyone wishing to appear on the program of the 1940 annual meeting in New Orleans should communicate with proper chairman immediately.

## TRI-PARISH MEDICAL SOCIETY

The Tri-Parish Medical Society held its regular monthly meeting in Tallulah, Louisiana, on Tuesday, August 1, 1939, at 7:30 p. m.

The following scientific program was presented: "Convulsions in Infants and Children," by Dr. C. M. Jarrell of Epps, and discussed by Dr. E. D. Butler, Oak Grove, and Dr. T. P. Sparks, Newellton. A presentation, on "Pyuria in Children" was given by Dr. Guy Jarrett, Vicksburg, and discussed by Dr. G. S. Hopkins, Lake Providence, and Dr. H. S. Provine, Tallulah.

## A. M. A. INDICTMENT QUASHED!

Justice James M. Proctor, upholding a defense demurrer to indictments, ruled on July 26 that the American Medical Association and its fellow defendants were not engaged in a trade as defined by the antimonopoly statutes. Counsel for the doctors had contended their activities could not be governed by the Antitrust Law, that they were engaged in a "learned profession" rather than a trade. On December 20, 1938 a District of Columbia Grand Jury, acting on evidence presented by

the Justice Department, indicted the American Medical Association, the Medical Society of the District of Columbia, the Washington Academy of Surgery, the Harris County (Texas) Medical Society and twenty-one individual physicians for violation of the Sherman Antitrust Law. These organizations and individuals, the indictment read, were "engaged in a continuing combination in conspiracy in restraint" of trade in hampering the activities of Group Health Association, Inc., for the District of Columbia, an organization established in 1937 to hire physicians and nurses and provide hospital care on a cooperative basis to government employees. Defense attorneys had contended that all their clients' activities were directed solely at the maintenance of the ethics and standards of the profession.

At the headquarters of the Association, officials, including Dr. Olin West, Secretary, and Dr. Morris Fishbein, Editor, said:

"The principles and policies of the American Medical Association do not forbid nor have they ever contemplated any opposition to a well considered expanded program of medical service, when the need can be established; neither is there any fundamental principle or policy which in any manner opposes aid to the indigent when indigence can be established.

"The American Medical Association has always welcomed investigation by any authorized agency of the nature of its organization or of the conduct of its work or of its activities, firmly reliant in the belief that every action taken by the Association has been in accordance with its constitutional organization in the interests of the public welfare for advancing standards and quality of medical service for the American people; and that at no time has it violated the established law of the federal, state, or municipal governments of this country. Moreover, by the very nature of its organization, it has preserved constantly the democratic principles on which the Government of the United States is founded and maintained."

#### NEW HEAD OF CHARITY HOSPITAL

Dr. Roy W. Wright has been appointed Director of the Charity Hospital of New Orleans by the Board of Administrators. This well merited promotion meets with the approval of the many friends Doctor Wright has made in New Orleans through his friendliness, tact and good common sense.

As assistants to Doctor Wright, Dr. Charles B. Odom will be in charge of the surgical division and Dr. Joseph O. Weilbaeher, Jr., at the head of the medical division. Both of these doctors have served for some years in the Charity Hospital in responsible positions and, likewise, merit their promotion.

#### DR. WRIGHT HONORED

A testimonial banquet was given in honor of Dr. Roy Wright, Superintendent of Charity Hospital, on the evening of August 24. The banquet was attended by some 300 physicians, many of whom spoke words of felicitation and good wishes to Dr. Wright.

#### MEDICAL DIRECTOR AT L. S. U.

Dr. Thomas C. Paulsen, of Baton Rouge, has been appointed physician to the Louisiana State University and medical director of its hospital.

#### NEWS ITEMS

The telephone number of the offices of the Louisiana State and the Orleans Parish medical societies and this medical journal has been changed to MAGNOLIA 4981.

Assistant Surgeon Albert L. Chapman, U. S. P. H. S., has been relieved from duty at Staten Island, N. Y., and will proceed to New Orleans for duty in the U. S. Marine Hospital.

Passed Assistant Surgeon Frederick J. Brady, U. S. P. H. S., has been relieved from duty in Washington, D. C., and will proceed to New Orleans for duty.

Dr. Ambrose H. Storck has recently returned from a visit to Surgical Clinics in England, Scotland, the Scandinavian states and the Continent.

At the invitation of The American Association for the Study of Neoplastic Diseases, Dr. Isidore Cohn will give an address at their meeting in Washington, D. C., on September 7, 1939. Dr. Cohn's subject will be "Carcinoma of the Breast in the Negro."

The Institute for the Consideration of the Blood and Blood-forming Organs conducted by the University of Wisconsin Medical School will be held at Madison, September 4-6, 1939. An excellent program has been provided and includes such distinguished speakers as L. J. Witts, Nuffield Professor of Clinical Medicine at Oxford; E. Meulengracht, Professor of Clinical Medicine at the University of Copenhagen; George R. Minot, Professor of Medicine at Harvard; Charles A. Doan, Professor of Medicine at Ohio State University; E. B. Krumbhaar, Professor of Pathology at the University of Pennsylvania; Hal Downey, Professor of Anatomy at the University of Minnesota, as well as many others of equal distinction.

The Mississippi Valley Medical Society will meet at Burlington, Iowa, September 27-29, 1939. Among others who will speak are Drs. F. F. Boyce, As-

sistant Professor of Surgery, Louisiana State University; E. A. Graham, Bixby Professor of Surgery at Washington University; A. E. Hertzler, Professor of Surgery, University of Kansas; Rock Sleyster, President of the American Medical Association. Many other equally well-known physicians will appear on the program.

The eighteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held September 5-8, 1939, at the Hotel Pennsylvania, New York City. Preceding these sessions, the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians, from August 30 through September 2.

Assistant Surgeon General R. A. Vonderlehr of the Division of Venereal Diseases of the U. S. P. H. S. announces the publication of a folder for dissemination to the laity. This folder, entitled "You Can End This Sorrow," has to do with hereditary syphilis. Copies are available for one dollar per hundred and may be obtained from the Superintendent of Documents, Washington, D. C. Single copies are five cents.

The publishing house of P. Blakiston's Son & Company, Inc., specializing in scientific and medical books, has been purchased by Horace G. White from the Executors of the Estate of Kenneth M. Blakiston. This business was established by Presley Blakiston in 1843, and was continuously in the Blakiston family until the death of Kenneth M. Blakiston in 1937. The policies which have made this old established concern so successful will be carried on by Mr. White, who has been connected with the company for over twenty-eight years, under the name of The Blakiston Company. The officers are Horace G. White, president; Robert F. Bowman and Charles C. Norris, Jr., vice-presidents; Edmund J. Glaser, treasurer; and Edward B. Barnes, secretary.

#### PROFESSIONAL OPENING

There is an opening for anyone interested in the specialty of diseases of the ear, nose and throat to take over the office equipment and practice of the late Dr. George R. Beridon. Interested parties should communicate with Mrs. Beridon, 914 S. Court Street, Opelousas, Phone 822.

#### LOUISIANA STATE SUBCOMMITTEE ON APPENDICITIS

Dr. D. B. Barber, president of the Louisiana State Medical Society, writes that he is anxious to have the members of the State Medical Society aware of the work this committee is doing in the state. The committee consists of Dr. J. D. Rives, New Orleans, chairman, and the following mem-

bers: Dr. Ambrose Storek, New Orleans; Dr. Charles McVea, Baton Rouge; Dr. A. L. Culpepper, Alexandria; Dr. George W. Wright, Monroe; Dr. Paul D. Abramson, Shreveport, and Dr. Walter Moss, Lake Charles.

The committee has sent out the following outline of what they propose to do in Louisiana:

#### OUTLINE FOR THE APPENDICITIS COMMITTEE SOUTHERN MEDICAL ASSOCIATION

A. Gather data from as many hospitals in your state (at the very least eight or ten, representative of urban and rural districts; beyond the minimum, the more the better). These data should include, in so far as possible:

1. Number of appendicitis cases (a) admitted and (b) operated upon. (This should *not* include cases in which other pathology is treated operatively at the same time, i. e., salpingitis and other pelvic trouble, gallbladder, stomach, etc.)

2. Stage of the disease, i. e., interval or prophylactic removal, acute unruptured, ruptured with walling off, and ruptured with diffuse peritonitis.

3. Duration of symptoms before operation, and when seen by doctor for first time.

4. Whether cathartic had been taken or not, when administered and by whom, i. e., layman, druggist, or doctor, and type of cathartic.

5. Type of incision employed, and whether appendix was removed or not.

6. Mortality rate, with as full data on any deaths as possible.

7. Average period of hospitalization, particularly contrasting average times necessary in unruptured and ruptured cases.

8. These figures should be on a year by year basis.

These data can be used as a yardstick to measure results in each individual state, and for comparison with figures, which can be furnished, representative of other communities, states, or the country as a whole. When the whole group of statistics from all the separate states is gathered into one group, codified, analyzed, and made available, they will furnish an invaluable source of information for planning the continuation of our campaign along the lines and in the directions most needed. (This will *not* be used, broadcast, for invidious comparisons.)

B. Through the public health services and the bureaus of vital statistics in the various states, find out the mortality per 100,000 population in appendicitis, and other diseases, i. e., cancer, tuberculosis, typhoid fever, diphtheria, pneumonia, etc., for example, which might aid in graphic presentation of the subject, both to laymen and medical men. Similar statistics can be furnished for other communities, states, the country as a whole, and some foreign countries, for comparison with those of any individual state, when the time comes to use them.

C. The information and educational efforts should be disseminated in so far as possible by the local, state and county medical societies, or at least by individuals assigned by them for that service, and under their auspices.

There should be periodic meetings, at least one a year, in which the program of the medical society should be devoted to phases of this subject, for the benefit of the professional membership.

There should be public meetings where health subjects, not necessarily limited to appendicitis possibly, should be ably and interestingly presented by chosen members of the profession.

There should be short radio addresses on health programs, sponsored, if possible, by the local medical society and the Public Health Service jointly, in which well chosen speakers touch upon salient points in the disease and the campaign against it.

There should be ethical, graphic, easily understood, and frequent brief rather than occasional lengthy, articles in the press. These should be featured as far as possible (as in the Cincinnati campaign).

There should be talks to the school children, probably mainly the junior and senior high school groups. It is probably here that the greatest good and the widest dissemination may be looked for.

In addition, no opportunity should be lost to draw in the aid of civic groups such as senior and junior Chambers of Commerce, Rotary, Kiwanis, and other clubs, women's organizations, Red Cross circles, Granges, etc. These could form the basis of most of the public meetings. The public meetings should be extended to the rural as well as the urban population, in so far as possible.

D. The size and constituency of the individual state committee will be left to the discretion of the individual State Chairmen. We would urge each one to consider the foregoing objectives when appointing his committee, however, and to remember that it is a state-wide, not a community, undertaking. With all the different phases to be covered, there would naturally be no limitation of committee membership to surgeons, or indeed to the profession. The best committee will be the one which can most efficiently disseminate the desired educational information through the channels above outlined.

E. The State Medical Society should be contacted immediately and informed of the proposed campaign, so that they will have full knowledge of, and be in full accord with the aims and objects which we hope to accomplish. Through them the constituent county and city societies can be contacted and informed, so that the whole movement may have the sanction of organized medicine in your state.

---

#### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly

morbidity reports of infectious diseases for the state, which contain the following summarized information: For the week ending July 15, the twenty-eighth week of the year, there were reported 366 cases of measles and 159 of whooping cough. Many of these reports were delayed and the figures do not indicate incidence during the current week. Diseases reported in numbers greater than ten were 124 cases of syphilis, 40 of typhoid fever, 38 of pneumonia, 34 of pulmonary tuberculosis, 31 each of influenza and cancer and 14 of hookworm disease. The typhoid fever cases showed a sharp increase to double the five-year average for this particular week of the year; eight of these cases were reported from West Carroll, seven from Orleans, and four each from Bossier, DeSoto and East Carroll parishes. The remainder, not more than one in any parish, were scattered throughout the state. Typhus fever was found in Calcasieu and in Iberia parishes. Syphilis again headed the list of reported diseases for the week ending July 22 with 103 cases; followed by 42 of typhoid fever, 39 of pneumonia, 36 of measles, 34 of gonorrhea, 27 of malaria, 26 each of cancer and whooping cough, 21 of pulmonary tuberculosis, and 14 each of hookworm disease and influenza. The majority of the typhoid fever cases occurred in West Carroll, Caddo, Webster, Richland, East Carroll and Ouachita parishes. Typhus fever was reported again from St. Landry, Calcasieu and Cameron. A case of poliomyelitis was listed from Caddo; one of encephalitis from Orleans. For the week ending July 29, there were listed 100 cases of syphilis, 40 of cancer, 38 each of pulmonary tuberculosis and typhoid fever, 34 of pneumonia, 29 of gonorrhea. This week the typhoid fever cases were pretty well scattered throughout the state. Webster, Richland, Bossier, DeSoto and Catahoula parishes were the only ones which had more than two cases reported. Typhus fever again appeared with one case from East Baton Rouge, while tularemia was also reported from the same parish. In the week ending August 5 were reported 278 cases of syphilis, 102 of whooping cough, 49 of malaria, 45 of pneumonia, 31 of pulmonary tuberculosis, 25 of cancer, 15 of typhoid fever and 10 of hookworm disease. Caddo with three cases and East Baton Rouge with the same number were the only parishes reporting more than one case of typhoid fever. One case of typhus fever was reported from East Baton Rouge, and in the following week, which came to a close August 12, there was reported one case from Calcasieu. Other diseases in numbers greater than ten were 116 cases of syphilis, 47 of pulmonary tuberculosis, 43 of whooping cough, 41 of pneumonia, 34 of cancer, 22 of malaria, 21 of typhoid fever and 18 each of gonorrhea and hookworm disease. Of the 21 cases of typhoid fever, three parishes reported more than two cases, Acadia, Ouachita and West Carroll.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending July 8 there were 140 deaths in the City of New Orleans divided almost equally between the two races. Fourteen of these deaths were in children under one year of age, with each race being represented by seven deaths. The week previous 141 deaths were recorded and the week after, closing July 15, the number jumped to 160, 97 in the white and 63 in the negro, and only nine in infants. For the week of July 22 the number of deaths had fallen to 140, divided 86 white and 54 negro. There were 17 infant deaths, 11 of which were among negroes. The following week, which closed July 29, saw only 132 deaths in the city, divided 75 white and 57 negro, and 14 infant deaths. There was a sharp increase in the number of people dying in the city during the week which terminated August 5. Of the 160 deaths which took place this week, 97 were in the white and 63 in the negro population. Twelve children under one year of age died this week of whom six were white and six negro.

████████████████████

**JACKSON J. AYO, M. D.**  
(1869-1939)

Dr. Jackson J. Ayo, superintendent of the East Louisiana State Hospital, died August 17, after a prolonged sickness.

Ayo was born in 1869, attended Jefferson College and graduated from Tulane University Medical School in 1893. After practicing a short time in New Orleans, he moved to Raceland where he made a great success, not only as a physician, but as a prominent business man. Ayo's services to the State Medical Society were many and varied. For some years he was an efficient and impartial Chairman of the House of Delegates. He was active in his parish society and held nearly every position to which a man could be elected. He was a member of the State Board of Medical Examiners.

In addition to these connections in the medical society, he was an active member of the Knights of Columbus, Catholic Knights of America and the Holy Name Society.

Surviving him are his wife and four children, one of whom is a doctor who practiced with his father in Raceland.

████████████████████

**GEORGE R. BERIDON, M. D.**  
(1891-1939)

Dr. George R. Beridon died in Opelousas July 28, 1939. Beridon graduated from Tulane University in 1915 and was licensed to practice medicine in 1916. He joined the Louisiana State Medical Society in 1918 and at the time of his death he enjoyed an excellent practice in Opelousas.

████████████████████

## WOMAN'S AUXILIARY

## Louisiana State Medical Society

For the information of Auxiliary members throughout the state, we print the names and addresses of officers, councilors and committee chairmen who comprise the governing Board.

## OFFICERS

President

**Mrs. S. M. Blackshear**  
2306 Camp St., New Orleans

President-Elect

**Mrs. Roy Carl Young**  
Covington

First Vice-President

**Mrs. H. O. Barker**  
1758 Albert St., Alexandria

Second Vice-President

**Mrs. Clifford U. Johnson**  
1213 St. John, Monroe

Third Vice-President

**Mrs. W. P. Bordelon**  
1516 Kirkman, Lake Charles

Fourth Vice-President

**Mrs. T. Everett Strain**  
525 Wilder St., Shreveport

Treasurer

**Mrs. W. R. Buffington**  
1312 First St., New Orleans

Recording Secretary

**Mrs. Edward C. Melton**  
Plaquemine

Corresponding Secretary

**Mrs. Charles R. Hume**  
1735 Milan St., New Orleans

## COUNCILORS

First District

**Mrs. C. Grenes Cole**  
1422 Bordeaux St., New Orleans

Second District

**Mrs. Roy B. Harrison**  
2327 Napoleon Ave., New Orleans

Third District

**Mrs. C. M. Horton**  
Franklin

Fourth District

**Mrs. J. E. Heard**  
3455 Caldwell St., Shreveport

Fifth District

**Mrs. Joseph P. Brown**  
301 K St., Monroe

Sixth District

**Mrs. A. W. Martin**  
Bogalusa

Seventh District

**Mrs. Walter Moss**  
511 Hodges St., Lake Charles

## Eighth District

**Mrs. R. Bruce Wallace**  
2225 Jackson St., Alexandria

## PAST PRESIDENTS

**Mrs. George D. Feldner**  
3814 Louisiana Ave. Pkwy., New Orleans

**Mrs. Frederick G. Ellis**  
4624 Fairfield Ave., Shreveport

## CHAIRMEN OF STANDING COMMITTEES

## Archives

**Mrs. S. Chaillé Jamison**  
1527 Seventh St., New Orleans

## Doctors' Day

**Mrs. W. A. Ellender**  
Houma

## Exhibits

**Mrs. M. C. Wiginton**  
Hammond

## Finance

**Mrs. Hiram W. Kostmayer**  
4 Tokalon Pl., New Orleans

## Historian

**Mrs. Joseph Bath**  
Natchitoches

## Hygeia

**Mrs. A. G. McHenry**  
1810 River Front, Monroe

## Indigent Physicians

**Mrs. Douglas C. McBride**  
1922 White St., Alexandria

## Legislation

**Mrs. Clarence Lorio**  
Baton Rouge

## Organization

**Mrs. Erwin L. Gill**  
130 Ardmore St., Shreveport

## Parliamentarian

**Mrs. Arthur A. Herold**  
1166 Louisiana Ave., Shreveport

## Press and Publicity

**Mrs. Edgar Burns**  
3227 Coliseum St., New Orleans

## Printing and Supplies

**Mrs. Hermann B. Gessner**  
119 Audubon Blvd., New Orleans

## Program

**Mrs. T. H. Watkins**  
Drew Park Dr., Lake Charles

## Public Relations

**Mrs. F. Creighton Shute**  
Opelousas

## Revision of By-laws

**Mrs. Aynaud Hebert**  
2617 Napoleon Ave., New Orleans

## PRESIDENTS OF PARISH AUXILIARIES

## Avoyelles

**Mrs. W. F. Couvillion**  
Marksville

## Caddo

**Mrs. C. P. Rutledge**  
4334 Richmond Ave., Shreveport

## Calcasieu

**Mrs. W. P. Bordelon**  
1516 Kirkman St., Lake Charles

## Iberville

**Mrs. Rhodes Spedale**  
Plaquemine

## Jefferson Davis

**Mrs. J. G. McClure**  
Welsh

## Natchitoches

**Mrs. Joseph Bath**  
Natchitoches

## Orleans

**Mrs. C. Grenes Cole**  
1422 Bordeaux St., New Orleans

## Ouachita

**Mrs. Courtland P. Gray**  
115 Louisville Ave., Monroe

## Rapides

**Mrs. M. H. Foster**  
1316 Albert St., Alexandria

## Sabine

**Mrs. O. L. Sanders, Jr.**  
Converse

## St. Landry

**Mrs. Charles Lewis**  
Eunice

## St. Mary

**Mrs. J. T. Prosser**  
Morgan City

## St. Tammany

**Mrs. Walter D. Simmons**  
Covington

## Tangipahoa

**Mrs. M. C. Wiginton**  
Hammond

## Terrebonne

**Mrs. J. B. Duval**  
Houma

## Vermilion

**Mrs. Robert Young**  
Abbeville

## Washington

**Mrs. A. W. Martin**  
Bogalusa

## Second District

**Mrs. P. A. Donaldson**  
Reserve

Respectfully submitted,

Mrs. Edgar Burns,  
Press and Publicity Chairman

## BOOK REVIEWS

*Roentgen Diagnosis of the Extremities and Spine:*  
By Albert B. Ferguson, M. D. New York,  
Paul B. Hoeber, Inc., 1939. Pp. 435. Price  
\$12.00.

This monograph is the seventeenth of a series already published on roentgenologic subjects. It is divided into sixteen chapters in which the author gives a clear understanding of the many conditions, citing interesting clinical cases, which affect the extremities and spine. The chapter on non-osseous tissues contains comprehensive description of the many kinds of soft tissues which may cast diagnostic shadows when examined by the roentgen rays. In this chapter, particular emphasis is given to the value of the roentgen ray diagnosis of non-osseous conditions involving various joints.

The book is profusely illustrated and contains five hundred and twelve illustrations, most of which are clear and explanatory. Some fail to demonstrate clearly what is intended by the author on account of poor prints. To be of value, any book on roentgenology is dependent upon the clarity of its illustrations, since roentgenograms are presented to show actual pathology as it exists, and serve as a permanent record for future references.

The book, on the whole, is a good one, and it can be used to advantage by orthopedists and roentgenologists.

L. J. MENVILLE, M. D.

*Allergic Diseases, Their Diagnosis and Treatment:*  
By Ray M. Balyeat, M. A., M. D., F. A. C. P.  
Philadelphia, F. A. Davis Co., 1938. Pp. 547.  
Price \$6.00.

This fifth edition is quite an improvement on the first which the writer was also privileged to review. Our late Dr. Scheppegegrell is here given due credit as also is our Crescent City,—the latter for the effective weed laws adopted.

The book as a whole seems to be more for the laity than for scientists who wish to delve deeply into the subject of allergy. Hearst's saying that a good picture is worth a thousand words is frequently proved throughout its more than 500 pages.

Though the reviewer does not believe in the indefinite repetition of lipiodol instillation or the patient's application of it to his bronchial tree, yet the part of the book devoted to this subject has merit. Another section which the reader will find of use is that dealing with contact and allergic dermatitis.

Outside of these two parts the reviewer would consider the rest of the work as a resumé, good for a quick but short reference.

NARCISSE F. THIBERGE, M. D.

*Gonorrhoea in the Male and Female:* By P. S. Pelouze, M. D. Philadelphia, W. B. Saunders Co., 1939. Pp. 470. Price \$6.00.

In this revised third edition the author emphasizes the necessity of a correct diagnosis and gentle handling of the patient. Great stress is placed on the proper usage and the interpretation of the effects of sulfanilamide.

The book stresses the importance of a program of venereal disease control in the section on "The Medical Profession and Gonorrhoea Control," and discusses many of the difficulties encountered.

MONROE WOLF, M. D.

*Anemia in Practice:* By William P. Murphy, A. B., M. D. Philadelphia, W. B. Saunders, 1939. Pp. 344. Price \$5.00.

This volume represents the product of many years intimate contact with the anemic patient, and is to be highly recommended to those who wish a brief, thoroughly practical presentation of this subject. The information presented here is the result of a study of 578 patients with pernicious anemia observed by the author during the past thirteen years. This exemplifies the progress which is being made in this and allied fields of internal medicine because of the institution of specialty clinics. The work vigorously points out that disorders of hematopoiesis require careful study in a hematology station or in a blood clinic; inaccurate erythrocyte counts and hemoglobin estimations by non-acceptable methods furnish no diagnostic information, and lead to many therapeutic errors.

One cannot disagree with any of the basic principles of treatment presented here. Scattered throughout the text are statements which bring much satisfaction to the reviewer because they have not been so presented in other works of this type. For example: "no amount of anemia is too slight to warrant treatment." The inclusion of liver in the treatment of hypochromic anemia is another useful therapeutic guide. The author rightly minimizes the usefulness of bone marrow biopsies in the differential diagnosis of anemia.

The text is so arranged that a brief but thoroughly adequate presentation of hypochromic and normocytic anemias prepares the reader for a better understanding of the dominant theme, pernicious anemia. The criteria for diagnosis of this latter condition are simply discussed. The five chapters which discuss many phases of liver therapy are the highlight of this book. Interesting data concerning the comparative efficiency and cost of anti-pernicious substance supplied as whole liver or liver extract are given.

MORRIS SHUSHAN, M. D.

*Landmarks in Medicine: (Laity Lectures of the New York Academy of Medicine)*: New York, D. Appleton-Century Co. 1939. Pp. 347. Price \$2.00.

This book represents a collection of the addresses to the laity that were delivered at the third series of the New York Academy of Medicine. There are some seven essays in all. Two of these are on historical subjects by eminent historians, Dr. Francis R. Packard and Dr. James J. Walsh. A third might be spoken of as a modern historical dissertation. Written by Dr. Lewis Gregory Cole, who was one of the first to use x-ray, it tells the tale of what has happened with the x-ray since it was first introduced into medicine. This is an autobiographic sketch preserving for posterity. Dr. Reginald Burbank, discussing medicine and the progress of civilization, also delves into the past and points out the important medical advances which have taken place almost from the beginning of civilization. Dr. Alfred E. Cohn writes on the meaning of medical research and shows how it develops a spirit which inspires the man doing investigative work. Dr. Raymond Pearl's talk is informative. The contribution of Dr. H. S. Martland is particularly fascinating to those, of whom there are many, interested in crime and in detective stories. He points out that Edgar Allan Poe was the first writer of mystery stories and, while Sir Arthur Conan Doyle continued to develop new situations in detective lore, he and all his followers, the modern spinners of detective tales, have adhered very closely to Poe's original formula. Martland also recites some very interesting murder cases and tells how they were solved largely through the work of the physician and the scientist. The solution of criminal problems, incidentally, has been materially advanced by the institution of the medical examiner's system in New York and in Newark, replacing the antiquated, according to Martland, coroner's system. The article is factual and interesting.

Although compiled largely for the laity, any medical man interested in philosophic, scientific and historic phases of medicine will find this collected series of talks intensely interesting.

J. H. MUSSER, M. D.

*Angina Pectoris: Nerve Pathways, Physiology, Symptomatology, and Treatment*: By Heyman R. Miller, M. D. Baltimore, The Williams & Wilkins Co., 1939. Pp. 275. Price \$3.25.

The book is divided into four sections. Section one treats of the concepts and clinical features of angina pectoris. The author explains the anginal syndrome as a disturbance of the entire autonomic system and the symptoms and signs correlated with the particular portions of sympathetic or parasympathetic nervous system. His clinical description takes in both angina pectoris and acute coronary occlusion. It is the reviewer's opinion

that while these two conditions arise from the same pathologic state, only varying in extent, they should be kept separate in the minds of the physician as the treatment varies considerably.

In section two, in collaboration with L. Vosburg Lyons, M. D., he deals with the anatomic pathways for the transmission of cardio-aortic pain. This is described by a progressive series of drawings with descriptive text. These drawings are interesting and instructive.

Section three deals with the distribution, the simulation, and the treatment of anginal pain. The chapter on the non-surgical treatment of angina pectoris would be considered by most cardiologists as a fairly good description of the handling of a case of coronary occlusion. There is not enough said about the treatment and management of the cases of angina, seen by physicians, of various grades of severity. Some of these cases may have coronary occlusion, many never have it and may enjoy fair health for many years if properly advised.

On page one hundred seventy, under the treatment of paroxysmal auricular fibrillation, he recommends the giving of a grain and a half per pound of body weight of powdered digitalis. This is entirely too much and is possibly a mistake. In this chapter he also takes up the treatment of congestive heart failure, associated cardiovascular syphilis and cardiac cachexia. At the end of this chapter he gives a list of about seventy-five different drugs or combinations; in addition to this are listed about forty-five different derivatives of barbituric acid and their combinations.

In the chapter on the surgical treatment of angina pectoris, including thyroidectomy, he discusses the work done up to this time, with four pages of bibliography.

Section four discusses the physiology and psychology of pain. These chapters are rather good and worth reading.

There are many thought provoking statements in this book. On the other hand there are many that may be misleading, especially from a clinical standpoint. It makes interesting reading for one thoroughly familiar with the current opinions on this subject.

J. M. BAMBER, M. D.

*Clinical Studies in Psychopathology*: By Henry V. Dicks, M. A., M. D. (Cantab.), M. R. C. P. (Lond.). Baltimore, William Wood & Co., 1939. Pp. 248. Price \$4.75.

The author, in the preface to his book, asks that it be accepted as an individual contribution to the current discussion—"if not confusion"—of a group of most important and interesting human problems.

Anxiety is characterized as a danger signal to the ego, as the most widespread of all of the symptoms of psychologic medicine and as the most



powerful determinant of pathologic adaptation and as its commonest expression.

Phobias, obsessional states, hysteria, the play of opposites, abnormalities of the sexual functions and drug addictions are appropriately explained from the viewpoint of an orthodox Freudian eclectic psychoanalyst. In discussing sexual abnormalities, it is written that "the amount of guilt present, the capacity for love and social relationship and the degree of impoverishment of personality suffered, will be the indices as to what extent such aberrations in sexual life are to be considered as 'neurotic,' as reactive character traits or as integrated and 'normal' functions of the particular individual." Drug addiction is regarded as an expedient resorted to by neurotic personalities of various types, when their other defences or compensations have broken down.

Throughout the text appear some eighty illustrative case studies, amazingly interpreted in accordance with formal Freudian concepts, principles and technics. Undoubtedly, sexually inclined neurotics would revel in these bizarre expositions and elucidations. The reviewer believes that Freudian interpretations are too often strongly influenced by the interpreter's inclination to reach conclusions in accord with his preconceived ideas and theories. For example, there appears on page 52 this statement,—the case having been related in detail: "Whereas in case No. 9 we were, I think, dealing with an hysterical displacement upwards from vagina to throat, in this case the 'power' element of the anal-urethral-phallic complex was much more evident."

The book is not an elementary text for the lay public, as the author states. It reports much valuable and fundamental practical work and research performed by a thoroughly trained English analyst and it will undoubtedly occupy a prominent place in psychoanalytic literature.

C. P. MAY, M. D.

*Methods of Refraction:* By J. W. Thornington, A. M., M. D. Philadelphia, P. Blakiston's Son & Co., 1939. Pp. 412. Price \$3.50.

The third edition of this well-known volume contains approximately 400 pages. The subject is presented in a simple, practical manner, being written essentially for beginners. The geometric fundamentals of prisms and lenses are omitted. Lens transposition, of which medical refractionists usually know too little, is discussed at some length, and the technic of refraction is presented in rather a lucid style. The visual requirements of the army, navy, and automobile drivers is of practical value.

Some modern ideas in refraction, such as benzadrine, homatropine cycloplegia, duochrome tests, modern phoropters, and newer instruments for orthoptic training, could have been added to advantage, as well as more modern illustrations.

Notwithstanding its shortcomings, this volume can help beginners learn the ABC's of practical refraction more painlessly than any other.

CHAS. A. BAHN, M. D.

*What It Means To Be A Doctor:* By Dwight Anderson. New York City, Medical Society of the State of New York, 1939. Pp. 87. Cloth \$1.00; paper \$.25.

This small volume contains a fund of information which should be of interest and of value to the public as a whole, the patient as an individual, and the medical profession, individually and collectively. It is timely in its appearance as many of the problems which are confronting the public and the profession are clearly stated.

The author, a layman, feels that the public should know more about the doctor: "Especially do we need to understand him better in a day when forces are at work to change his status, from that of a free individualist to one of a civil servant, subject to governmental control.

"The public is asked to judge the doctor on meager information, and to decide whether he is right or wrong in resisting the tendency towards State Medicine."

The author undertook to find out more about the doctor, by sending questionnaires to a group of five hundred doctors. The questions which were sent out to doctors were intended to find out the quality of mind, the character of the individual, what decided the individual to study medicine, and if he had a son, would he wish him to select medicine as a career.

The summary of these investigations are of great interest. It is clearly brought out that the doctor must possess intellectual curiosity, optimism and courage, a flexibility of mind, and intellectual integrity.

In answer to the inquiry, one doctor wrote: "One cannot be a real physician unless he chooses his profession for the good he can do rather than the goods he can acquire."

In a novel form the author presents the story of medical education, the training of the individual after college graduation, and the development of medical organizations. Safeguarding public welfare by providing the best possible individual care is emphasized as a function of medical graduate programs.

In the final chapter "The Doctor of Tomorrow," the question is asked: "Why are doctors so disturbed by the possibility of State Medicine?" The answer: "It is because these new proposals involve in one way or another the substitution of a state official for the practicing physician of the patient's own choice."

This little volume is a splendid plea that the public should listen to the claims of the doctor when he states that his freedom is definitely at stake. It is a splendid plea for the public to ap-

preciate that the doctor knows best what would happen to him, if there should come government control. The interest of the doctor and the patient are the same.

This small volume is one which every doctor should certainly be familiar with. He might well recommend it to his friends, so that they too may be better prepared to understand what it means to be a doctor.

ISIDORE COHN, M. D.

*Cutaneous Cancer and Precancer:* By George M. MacKee, M. D., and Anthony C. Cipollaro, M. D. New York City, American Journal of Cancer, 1937. Pp. 222. Price \$3.75.

This is a monograph designed for the practical purpose of reducing the mortality of accessible cancer and should serve as a reference text for the average physician or surgeon, as well as to the specialist and teacher; as a text for studying skin diseases, plastic surgery and radiologic therapy. The material is collected and arranged in a systematic manner. First the disease is pictured, then described; photomicrographs of the lesions, etiology of the disease, ways of prevention are shown; and lastly accepted treatment for the disease is outlined. The diseases are classified so that valuable time in an early diagnosis is conserved rather than lost, and a curable condition is treated before the "too-late" signal has to be hoisted.

This is a valuable book for quick, reliable reference written by men of vast experience.

M. T. VAN STUDDIFORD, M. D.

*Life and Letters of Dr. William Beaumont:* By Jesse S. Myer, A. B., M. D. St. Louis, C. V. Mosby Co., 1939. Pp. 327. Price \$5.00.

The reprint of this work is timely, for just last May, in the "Bulletin of the History of Medicine," Luckhardt, in commenting on the Beaumont Collection of the University of Chicago, complained that the original printing of Myer's book was exhausted, and the volume was difficult to secure, even at a substantial price.

This book may be recommended unqualifiedly, for little need be added to the commendation that the original issue received at the hands of Sir William Osler, "it is a pleasure to introduce to the profession a worthy study of William Beaumont—family papers have been placed at the disposal of Dr. Myer to whom it has been a labor of love to present a picture of the first great American physiologist in its proper setting."

The typography is good, and the value of the book has been enhanced by the addition of an estimation of Beaumont's work by A. C. Ivy and by the inclusion in the appendix of the letters of Alexis St. Martin recently presented to the University of Michigan Library by Frederick A. Coller.

B. B. WEINSTEIN, M. D.

#### PUBLICATIONS RECEIVED

American Medical Association, Chicago: *New and Nonofficial Remedies, 1939. Annual Reprint of the Report of the Council on Pharmacy and Chemistry, 1938.*

Columbia University Press, New York City: *Epidemic Encephalitis, Third Report by the Mathe-son Commission.*

F. A. Davis Company, Philadelphia: *Headache and Head Pains by Walton Forrest Dutton, M. D. Proctology for the General Practitioner by Frederick C. Smith, M. D., M. Sc., (Med.) F. A. P. S.*

The Johns Hopkins Press, Baltimore: *John Howard (1726-1790) Hospital and Prison Reformer: A Bibliography by Leona Baumgartner, M. D., Ph. D.*

Lea & Febiger, Philadelphia: *Surgical Applied Anatomy by Sir Frederick Treves, Bart., revised by Lambert Rogers, M. Sc., F. R. C. S., F. R. C. S. E., F. R. A. C. S., F. A. C. S.*

J. B. Lippincott Company, Philadelphia: *Functional Disorders of the Foot by Frank D. Dickson, M. D., and Rex L. Diveley, M. D. The Art of Anesthesia by Paluel J. Flagg, M. D.*

The Macmillan Company, New York City: *A Textbook of Microbiology by Kenneth L. Burdon, Ph. B., Sc. M., Ph. D.*

The C. V. Mosby Company, St. Louis: *Cardiovascular Diseases by David Scherf, M. D., and Linn J. Boyd, M. D., F. A. C. P. Operative Orthopedics by Willis C. Campbell, M. D.*

Ransdell, Incorporated, Washington, D. C.: *Hay-Fever, What To Do About It! by Harry S. Bern-ton, M. D., F. A. C. P.*

The Rockefeller Foundation, New York City: *Annual Report, 1938.*

W. B. Saunders Company, Philadelphia: *Modern Clinical Psychiatry by Arthur P. Noyes, M. D. Surgery of the Eye by Meyer Wiener, M. D., and Bennett Y. Alvis, M. D.*

Frederick A. Stokes Company, New York City: *Do You Want to Become a Doctor? by Morris Fishbein, M. D.*

Charles C. Thomas, Springfield, Illinois: *Peripheral Vascular Diseases by William S. Collens, B. S., M. D., and Nathan D. Wilensky, M. D. Medical Climatology by Clarence A. Mills, Ph. D., M. D.*

Williams & Wilkins Company, Baltimore: *Manual of Urology by R. M. LeComte, M. D., F. A. C. S. The Harvey Lectures, delivered under the auspices of The Harvey Society of New York, 1938-1939, by Dr. Guy F. Marrian, Dr. A. Ashley Weech, Dr. Eugene F. DuBois, Dr. Edwin J. Cohn, Dr. Edwards A. Park, Dr. K. Linderstrom-Lang, Dr. C. H. Danforth, Dr. Albert Szent-Györgyi, Series XXIV. Sclerosing Therapy edited by Frank C. Yeomans, M. D., F. A. C. S., M. R. S. M. (London, Hon.).*

# New Orleans Medical

and

# Surgical Journal

Vol. 92

OCTOBER, 1939

No. 4

## EXTRA-UTERINE PREGNANCY\*

C. P. GRAY, M. D.

AND

C. P. GRAY, JR., M. D.

MONROE, LA.

The real purpose in presenting this paper on extra-uterine pregnancy is to impress upon you, especially the younger men in the Society, that the symptoms in many cases differ considerably from those outlined in most textbooks. Extra-uterine, or ectopic pregnancy, is pregnancy outside the uterus. It may be tubal, ovarian, intraligamentous or intra-abdominal, the majority of cases being tubal. The term tubal pregnancy should be reserved for pregnancy which occurs only in the tube.

The importance of extra-uterine pregnancy cannot be over estimated when we realize it is one of the great dangers every woman must face between puberty and the menopause. Since, according to the statistics of Schuman, one extra-uterine pregnancy occurs in every 300 pregnancies, it is not less common than twin pregnancies. As Charles Mayo once so aptly stated, the often unexpected change from complete health of a woman to the development of most alarming symptoms and sometimes death, at times, makes extra-uterine pregnancy a real catastrophe.

### ETIOLOGY

The etiology of extra-uterine pregnancy broadly speaking may be anything which

prevents the passage of the fertilized ovum through the fallopian tube from the ampullary portion, where fertilization of the ovum is supposed to take place, into the uterine cavity. This failure or delay of passage of the fertilized ovum through the tube may be elaborated upon or divided into intrinsic and extrinsic causes and to some hormonal disturbance of the musculature of the tube.

The various theories as to the exact etiology of extra-uterine pregnancy and their elaboration are rather interesting. There may be some developmental defect present in the tube and in many cases there has been some past inflammatory condition which leaves bands of adhesions or kinks in the tube. Some writers claim there is a period of relative sterility just preceding extra-uterine pregnancy. Miller, of Philadelphia, found this to be true in 36 per cent of his cases. We have also found this period of relative sterility present in most of our cases covering a period of 25 years. Mall, in his study of extra-uterine pregnancy, found normal ova in only 16 per cent of his cases. In 25 per cent he found pathologic embryos and in 59 per cent he found pathologic ova. This question of abnormal ova is open to discussion.

It is a recognized fact that extra-uterine pregnancy is known to recur two and three times in the same individual. The authors have found this to be true in several cases.

Frankel and Schenck, as a result of their research, claim that the etiologic factor in extra-uterine pregnancy is prior existence of endometrial tissue in an ectopic site.

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

These workers also say that all ectopic pregnancies are primary.

In Russia, where abortion is now legalized, it is said there is a great increase in the number of extra-uterine pregnancies. This is supposedly due to a low grade infection in the fallopian tubes with resultant pseudo-gland spaces.

While this paper is not intended to cover all the phases of the etiology of ectopic pregnancy, the foregoing factors are mentioned.

#### DIAGNOSIS

In studying the symptomatology of extra-uterine pregnancy and in trying to arrive at a diagnosis, bear in mind the woman's past history: How long she has been married; age of youngest child; has she had any pelvic inflammatory trouble, such as a salpingitis; any pelvic operation, or curettement; has she had any previous miscarriage; has she menstruated regularly each month during the preceding six months? One will find that a consideration of these few simple points may be worth much in arriving at a diagnosis.

#### SYMPTOMS

The typical textbook symptoms of ectopic pregnancy are familiar to all but unfortunately these symptoms are present in but few patients. In the very early stages of extra-uterine pregnancy, before a menstrual period has been missed, the symptoms, if any, are those of a normal intra-uterine pregnancy. If the case is one of several weeks' duration, a missed period or an anomalous period is noted. Pain or discomfort on the affected side, due to distention of the tube, may or may not be present. If the tube ruptures or there is a tubal abortion then pain may become the paramount symptom, followed by more or less shock, vaginal bleeding and the textbook symptoms of ruptured extra-uterine pregnancy.

#### DIFFERENTIAL DIAGNOSIS

We mention the differential diagnosis merely to emphasize the frequency of a mistaken diagnosis. This mistake is largely due to the fact that so many doctors seem

to look upon extra-uterine pregnancy as a rare condition and do not connect it with the particular patient under consideration. Another reason for the frequency of a mistaken diagnosis is that so few cases of extra-uterine pregnancy follow what we term textbook pictures. Bear in mind that before rupture there are no symptoms, other than those of a normal pregnancy, and even then the patient may not have missed a period. After rupture the symptoms may be in accord with the typical textbook picture or they may be similar to the following case:

#### CASE REPORT NO. 1

Mrs. T., aged 29, white, American born, married eight years; no children, no serious past sickness, no operations; menstrual history normal and of 28 day type. This patient came to the office because of a continued menstrual period, which she stated appeared two days late. It was only during examination and after questioning, that she noted a very slight tenderness in the right side, low down. At this time nothing could be detected on vaginal examination. After close questioning, she recalled that while sitting in a picture show one week previously she experienced a slight burning pain in the right ovarian region. At this time she thought the peculiar sensation was due to her sitting with legs crossed and in an awkward position. In fact, she had forgotten the burning sensation until one of us questioned her closely. An extra-uterine was suspicioned and when operation at first was refused she was advised to go to bed. The mild uterine bleeding continued for one week. Later an enema was given. During the time the enema was being administered the patient cried out with pain and went into shock. She was immediately moved to the hospital and operation, which had been previously refused, was gladly accepted. At operation a ruptured right tube was found with the lower abdomen filled with red blood and a partially walled off area containing the products of conception. The rupture of the tube was very small and had been completely walled off, the enema no doubt being the direct cause of breaking down the walled off area causing free bleeding.

#### CASE REPORT NO. 2

Mrs. S., white, aged 45, married 20 years, mother of one child 12 years old; no serious past illness and no operations; menstrual periods irregular for previous year. This woman thought she was approaching the menopause and paid no attention to missed periods. When first seen, she, also, came to the office and gave the history of having been menstruating for 10 days. She complained of only

slight tenderness in the lower abdomen. There was no history of any sudden onset and at no time had pain been a factor. Vaginal and bimanual examination revealed a mass as large as a grapefruit in the right side of the pelvis. At operation a distinct rupture of the right tube was found with a seven or eight weeks' pregnancy.

#### CASE REPORT NO. 3

The third case was a very interesting one: This was a 28 year old white woman, who had been married nine years. She had previously been operated upon for a right-side tubal pregnancy. She gave a history of having suffered from a rather sudden cramp-like pain in the lower left abdomen four months prior to her admittance to the hospital. Her complaint was uterine bleeding of two weeks' duration and a tender mass about the size of a grapefruit in the lower midabdomen. Due to her past history she was kept under observation for several days, during which time the mass in the abdomen rapidly became larger, until she had the appearance of a seven or eight months' pregnancy. During this time she became pale, with all symptoms of an acute anemia. Due to the rapid increase in the size of the mass, the acute anemia, and blood picture, it was evident that continuous bleeding was going on, so immediate operation was decided upon. A direct blood transfusion was administered prior to operation and to compensate for loss in blood volume 5 per cent glucose and saline was administered during operation. A four and one-half months' abdominal pregnancy with a very large walled off, intra-abdominal hematoma was found. A slow bleeding within the walled off membranes had been going on for several days which accounted for the rapid increase in the size of the mass.

This third case might have been primarily a tubal pregnancy, which aborted into the abdominal cavity and there attached itself to the mesentery. A large, well formed placenta in this case was firmly attached to the mesentery; it was sutured to control bleeding and left within the abdomen. Two years later this woman was well and enjoying good health.

A fourth case was also very interesting and unusual:

#### CASE REPORT NO. 4

This was a white woman, aged 26, married six years and never pregnant before; her menstrual history was normal; she had no previous operations and gave no history of ever having had any pelvic pathology. She had considered herself normally pregnant, of eight weeks' duration. One of us (C. P. G., Jr.) was called to attend her in what seemed to be an incomplete abortion. The

membranes passed per vagina proved to be placental tissue and we thought we were dealing with an ordinary miscarriage plus a moderate infection involving the left tube and broad ligament. The woman continued ill and a mass formed in the lower midabdomen. We still thought we were dealing with an infection but at operation we found a ruptured left tubal pregnancy. This woman was pregnant both in the uterus and left tube. It was our opinion that the rupture of the tubal pregnancy was secondary to the contractions of the uterus which resulted in the uterine abortion. There were at no time the so-called typical symptoms of a ruptured extra-uterine pregnancy.

#### PERSONAL EXPERIENCES

Recently, we have had four other cases of extra-uterine pregnancy, all of them atypical cases. This has caused one of us (C. P. G.) to go back over the cases of extra-uterine pregnancy seen during the past 30 years. In the majority of these cases the most important symptom or the cause for seeking medical aid has been moderate prolonged uterine bleeding. Some few have complained of pain and tenderness on the affected side in addition to the bleeding. One woman complained of frequency of urination and prolonged uterine bleeding as being the most prominent symptoms.

In presenting this report of these atypical cases of extra-uterine pregnancy it is not our intention to minimize this condition, but to remind you that many cases, especially where the pregnancy is not far advanced, will not be diagnosed unless consideration be given to extra-uterine pregnancy. We would not have you, by any means, overlook the case of five to eight weeks' duration, where a frank rupture of the tube takes place, because it is in these cases that prompt and skilled treatment plus good judgment is called for.

There are today many aids which may be made use of in diagnosing extra-uterine pregnancy, such as the various tests to determine first the presence of pregnancy, the sedimentation test and endometrial biopsies. These are all of value but the history of each case is equally as important.

#### REVIEW OF THE LITERATURE

From a brief review of the literature of the past several years one cannot help but

notice the number of articles appearing on the general subject of extra-uterine pregnancy. From a study of some of these articles and the analysis of many hundreds of cases one is impressed by what Charles Mayo said about the danger all women must face. In a recent article by Fitzgerald and Brewer they state, "the diagnosis still presents great difficulties as is evidenced by the percentage of errors, and the mortality tables convince one that the ability to diagnose such cases and the method of treating them deserve further consideration."

From a clinical study of 500 cases admitted to Cook County and St. Luke's Hospital, they arrive at the following conclusions:

1. A long period of sterility was not the rule.
2. Pain of some type was the most common symptom.
3. In two-thirds of the cases, sudden, severe pain was present.
4. In the majority of unruptured cases the pain was of a cramping character.
5. Abnormal bleeding was present in the majority of cases.

Mueller recently reported a series of 40 cases occurring in the services of Cameron Duncan at Kings County Hospital and arrived at some interesting conclusions. Mueller also reminds us that the first operation for extra-uterine was performed by John Bard of New York, December 25, 1759, but it remained for Lawson Tait to establish the operative treatment in 1883.

The analysis of the cases reported by Mueller reveals the following summary:

1. Previous pelvic disease is an important factor.
2. Hormonal disturbances present a new thought as to the etiology of ectopics.
3. Most of these 40 patients with extra-uterine pregnancies were between the ages of 20 and 33 years.
4. History of previous sterility played a minor role.
5. The two most common symptoms are abdominal pain and irregular bleeding.
6. The most common vaginal finding was tenderness on motion of the cervix.

7. He stresses the importance of the sedimentation time as a laboratory method.

8. The Aschheim-Zondek test is valuable and should be used when indicated.

9. The ampullary type is the most frequent.

10. Surgery is the only method of treatment.

11. Autotransfusion is of value.

12. Only the diseased fallopian tube should be removed.

13. Colpotomy should be resorted to only occasionally.

14. Diagnosis in the unruptured case is difficult.

15. A complete and accurate history is most valuable in arriving at a correct diagnosis.

#### SURGICAL TREATMENT

All writers agree that surgery is the method of treatment, but the exact time for operation in some women is debatable. Each patient should be cared for according to the severity of the symptoms. It is essential, however, if the death rate is to be reduced that caution and judgment prevail in the more serious cases where shock is a factor. Some operators wait if the patient is severely shocked until the blood pressure rises, which others operate immediately to stop all bleeding and then treat the patient for the shock. Each group reports good results. We would, however, caution that no other surgery be attempted in a ruptured extra-uterine and the operation be completed as early as possible. The ruptured tube alone should be removed, leaving the ovary in all cases. The postoperative care should be sufficient to meet whatever needs may be present.

#### SUMMARY

The etiology, symptoms, diagnosis and treatment of extra-uterine pregnancy are discussed. Four case reports are presented, illustrating ruptured tubal pregnancy.

#### BIBLIOGRAPHY

- Fitzgerald, James E. and Brewer, John T.: Extra-uterine pregnancy. A clinical study of 500 cases, *Am. J. Obst. & Gynec.*, 32: 264, 1935.
- Falk, Henry C. and Rosenbloom, Monroe A.: Extra-uterine pregnancy. An analysis of 313 cases, *Surg. Gynec. Obst.*, 62: 228, 1936.

- Falk, Henry C.: *Practical Clinical Gynecology*, 1937.
- Mayo, Chas. W. and Straussman, Erwin O.: Fertility and sterility after extra-uterine pregnancy, *Surg. Gynec. Obst.*, 67: 46, 1938.
- Miller, Leon: The diagnosis of extra-uterine pregnancy. An analysis of 104 cases. *Am. J. Obst. & Gynec.*, 34: 109, 1937.
- Sloat, J. T. and Peterson, Leonard T.: Simultaneous extra-uterine and intra-uterine pregnancy, *Am. J. Obst. & Gynec.*, 41: 293, 1938.
- Mueller, C. W. A.: Five year survey of ectopic pregnancy on the service of Dr. Cameron Duncan, Kings County Hospital, *Am. J. Surg.*, 29: 42, 1935.
- Posner, Chas. A.: The treatment of late abdominal pregnancy with report of two cases, *Am. J. Obst. & Gynec.*, 36: 683, 1938.

## DISCUSSION

Dr. E. L. King (New Orleans): I want to emphasize the points Dr. Gray brought out regarding the typical picture so frequently present in ectopic pregnancy. We can always make a diagnosis fairly easily if this typical picture is present. But so often it is not present, and I think every one of us has had the experience of curetting a woman for a supposed incomplete abortion, to find later on the signs of ectopic pregnancy. I know I have done it at least twice and may have other times. Some years ago, Dr. Litzenberg, talking on ectopic pregnancy, stressed the importance of finding a mass. I do not think we should always insist on the presence of a mass before making a diagnosis. I have two cases in mind where I made the diagnosis without finding a mass and later verified the diagnosis.

Dr. Gray brought out the diagnosis of tubal rupture before operation. It is practically impossible. There is not necessarily bleeding in tubal pregnancy. There are cases where the diagnosis is made in the presence of a missed menstrual period plus severe pain in the side, without bleeding and without a mass. So we have to watch all these typical cases and be on guard continually because of the importance of early diagnosis.

Regarding the diagnosis of full term abdominal pregnancy which Dr. Gray did not mention, I would say that it is a difficult problem, especially as there is frequently no history of previous tubal abortions. The x-ray does not help us to diagnose this full term ectopic pregnancy.

Those are the main points; another point I want to stress in the diagnosis of extra-uterine pregnancy where we are trying to figure out whether we are dealing with an ordinary uterine abortion or tubal pregnancy is rush microscopic examination of tissue removed from the uterus on admission. If we find chorionic villi, we know we are dealing with a uterine affair. If the pathologist reports decidual cells only, it is more likely to be an extra-uterine pregnancy. That may be of some value in these doubtful cases.

Regarding treatment, I see no objection to blood transfusion before operation. The point has been brought out that it may raise the blood pressure

and hence cause a recurrence of bleeding. I think it should be done either just before, or even better, just at the time we start the operation. I am not in sympathy with waiting for the patient to react from shock before operating. That does not seem logical. I have seen these patients operated on with little or no pulse, and blood transfusion being started at the same time.

One point about the placenta, in advanced abdominal pregnancy. As Dr. Gray brought out, in such a case, with the fetus alive or dead and we find that the tissue cannot be removed easily, we can tie the cord, leave the placenta in situ, and it will be absorbed.

Dr. H. B. Alsobrook (New Orleans): If there is any place in surgery where history is indicated it is in a case of extra-uterine pregnancy. I think it is most important of all the things we do, getting a very careful history, even though it has to be reviewed several times. You can nearly always prove it if you have a suspicion of extra-uterine pregnancy. I have been thinking of what one of my teachers quoted of Dr. Ernest Lewis, "If you suspect one put it down as extra-uterine pregnancy, and in 75 per cent of the cases, you will be correct."

There are two more things we get out of the history. One is pain, and if you will go into the history of extra-uterine pregnancy, you will find a large per cent will give a history of pain some time or another. Another point, which has not been mentioned, is the question of fainting. In nearly every instance, you will find these patients will have a history of fainting some time during the rupture. If you get a history of sharp, lancinating pain and fainting, you can put it down as extra-uterine pregnancy.

Another thing Dr. Gray did not mention because he did not have time, is sometimes you will find men who want to take the blood out of the abdomen. I recently helped a man with a patient who had a large amount of blood in the abdomen and the intern insisted on taking the blood out of the abdomen. Leave it in the abdomen and you will be surprised how quickly it will be absorbed.

Dr. T. H. Watkins (Lake Charles): Why open the abdomen and let that blood flow out? Why lose that blood? Dip it out with a cup and run it back into the patient and you will be surprised at the wonderful appearance of the patient when she goes down from the operating room.

Dr. D. A. Huckaby (Shreveport): I just want to emphasize the point of difficulty in diagnosis. I have had quite an experience of late and believe it is most difficult to make a diagnosis, and I want to quote a little experience I had with a patient along that line not long ago. Dr. King said he had curetted once or twice; I curetted twice, once before the operation and once afterwards in the same patient. The patient had bleeding and a previous history of miscarriage some few years ago, a fairly young woman, no children, and she started bleeding

and I felt like she had a postabortal affair and curetted and she bled a little, stopped and then started bleeding again. The same night the bleeding came back she had a sharp pain and she called me back and I suspected and diagnosed extra-uterine pregnancy. I sent her to the hospital, took her blood pressure and it was 128. She was sent to the operating room where we used spinal anesthesia and her blood pressure went to 50 and then 40. We gave her stimulants and the blood pressure was 90. I opened the abdomen and she was bleeding from the tube and there was about one to one and a half quarts of blood in the abdomen. The amount of blood always looks more than it is. She made an uneventful recovery. There was a little bleeding later and I had to go back later and curette her and she got completely well.

What particularly confuses us in diagnosis is that in this history it was very suggestive of just an ovarian dysfunction; she did not have any pain until that night. It made it difficult because I had another patient of the same type at the same time who did have considerable pain in the right side and I suspected extra-uterine pregnancy and she had an infected right tube.

Dr. C. P. Gray (In conclusion): I have left out many valuable points, while some others have been covered in the remaining part of the paper which time would not permit me to read. As you know it is quite an effort to prepare and read a paper on such an important subject as this, within twenty minutes, the time allotted.

There are one or two points I wish to dwell upon further. Dr. King mentioned the handling of the placenta in the abdominal cases. If the placenta can be easily detached and removed without hemorrhage, and the condition of the woman is good, remove it. If the woman's condition is not good or if there is much bleeding, or if the placenta is hard to detach, one had best leave it within the abdomen. Ligate all bleeding points and close the abdomen without drainage. If there is dangerous bleeding the edges of the placenta may be sutured to the edges of the abdominal incision and packed firmly with gauze.

Dr. Alsbrook is eminently correct about pain as a symptom in the majority of typical cases. I had dwelt upon this in my final conclusions which time did not permit me to read.

From an experience of 25 years I am led to look for three things in suspicious cases of extra-uterine pregnancy: First, a missed period, if even but a few days; second, some type of pain, revealed at times only by close and repeated questioning and thirdly, bleeding. This bleeding is usually considered a prolonged menstrual period.

With reference to transfusing the woman with blood within the abdomen as mentioned by Dr. Watkins, this form of therapy is advocated and used by many. We have found it very satisfactory in several cases of advanced extra-uterine

pregnancy where the intra-abdominal hemorrhage was very great.

One thing mentioned in the paper which I did not read, I would like to call your attention to now; that is vaginal puncture for diagnosis. It is quite easy to puncture the posterior vaginal wall and obtain blood in case of a ruptured ectopic, but by so doing you are likely to infect the woman and cause her death. I would caution against the use of this means in arriving at a correct diagnosis; better make a wrong diagnosis than kill your patient.

---

## THE MANAGEMENT OF URINARY INFECTIONS IN PREGNANCY\*

U. S. HARGROVE, M. D.

BATON ROUGE

This paper will deal with the subject of pyelitis of pregnancy, as other types of urinary infection are not particularly different in the pregnant and non-pregnant states. Pyelitis occurring during pregnancy, however, exhibits characteristic features not present in other cases of pyelitis.

Valid objection can probably be raised to the use of the term pyelitis in this clinical entity; the more correct term being pyelonephritis, which more nearly expresses the pathology present. Common usage, however, has caused the name "pyelitis of pregnancy" to become well entrenched in medical literature, and nothing is to be gained by changing it. Everyone knows that the pathology in these cases goes beyond the pelvis of the kidney.

### ETIOLOGY

In order intelligently to discuss the management of this disease, it is necessary to have some understanding of its etiology, pathology, and diagnosis. The primary etiologic factor in all cases is an infection of the upper urinary tract with some pathogenic bacterium. The organisms found, in 90 per cent or more of cases, belong to the *B. coli* group<sup>1</sup>. Staphylococci, streptococci, and occasionally other bacteria are found, or there may be a mixed infection.

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.



The determination of the organisms present is of considerable importance, especially in relation to different urinary antiseptics used in the medical treatment.

There are three commonly accepted avenues of infection,<sup>2</sup> namely through the blood stream, the lymph stream, and the lumen of the ureter, and each has at different times been considered the most common pathway for the infecting organisms to reach the upper tract. I have frequently seen acute pyelitis develop soon after symptoms of cystitis appear, so I believe the infection usually reaches the kidney through reflux of infected urine up the lumen of the ureter. It has been shown by Francka<sup>3</sup> and others that there is rather close communication between the lymphatics of the colon and the right ureter and kidney. This would seem to justify the opinion that infection probably often travels in this direction, and especially so, since the *Bacillus coli* is the chief offender.

#### PATHOLOGY

The most interesting point in the pathology of pyelitis in pregnancy is the fact that there is a dilatation of the upper urinary tract in practically 100 per cent of pregnant women. Woodruff<sup>4</sup> and others have studied fairly large series of normal cases by means of intravenous pyelograms and have found this to be the case almost without exception. The dilatation varies from mild to very marked. This finding was first noticed at the autopsy table<sup>4</sup>, but it was not until after intravenous urography was perfected that its universal presence was appreciated. The cause of this dilatation has been the subject of considerable debate. The first theory was that it was due to pressure of the enlarged uterus against the pelvic portion of the ureters. Arguments were then advanced that the specific gravity of the uterus and its contents was the same as that of the rest of the abdominal and pelvic organs and that thus it would be impossible for the uterus to compress the lower ureters. Evidence was produced by Kidd<sup>5</sup> and others that this dilatation was brought about by the action

of some hormonal substance acting more or less generally on all the smooth muscle organs. Woodruff has shown, however, that it is only the upper two-thirds of the ureter which is involved in the dilatation, and reasons that if some hormonal substance were responsible, that the whole length of the ureter should be equally involved. There appears to be no consensus of opinion on this subject as yet, but the simple mechanical pressure theory seems most plausible to the writer.

The other pathologic findings in pyelitis of pregnancy are the same as in other cases of pyelitis, namely the ordinary signs of inflammatory reaction in the ureter, pelvis, calyces, and extending into the parenchyma of the kidney, together with the dilatation found in pyelectasis and ureterectasis. The process may extend to the stage of infected hydronephrosis and pyonephrosis.

#### DIAGNOSIS

The diagnosis of pyelitis of pregnancy ordinarily offers no great difficulties. Chills and fever; pain and tenderness in the kidney regions; renal colic; the finding of pus and bacteria in the urine; an elevated leukocyte count, and the absence of other findings, such as plasmodia in the blood smear, should usually be sufficient to clinch the diagnosis. It would be helpful, certainly, to have a complete urologic study in order to rule out pre-existing conditions, such as renal calculi, but this is by no means always possible. The diagnosis being established, or at least indicated, a line of treatment must be instituted.

#### PROPHYLAXIS

At this point it may be wise to insert a few remarks concerning prophylactic treatment. This is especially important in women who have had pyelitis in previous pregnancies. It has been my experience that a woman who has had pyelitis during one pregnancy is more apt to have it in a subsequent pregnancy than is the patient who has never been so affected. Practically all obstetric patients have a urinalysis at frequent intervals. If pus is found in the catheterized specimen, immediate atten-

tion should be given to this condition and close observation maintained. By the administration of suitable medication, it is possible to prevent many of these patients from developing a marked pyelitis.

#### TREATMENT

Once the attack has developed, treatment should be individualized with each case. During the first acute phase, supportive and symptomatic measures are in order. The diet should be chiefly liquid. The bowels should be kept open with salines, milk of magnesia, or one of the mineral oil preparations. Aspirin and codeine are given for pain and high fever. Other antifebrile measures such as ice-caps, sponge baths, and alcohol rubs may be used as desired. The patient should be made as comfortable as possible in order to conserve her strength. Nothing in the way of specific medication should be attempted during the first few days. The administration of an alkaline diuretic is useful in this stage. It seems to make the patient feel better, as it does in other acute febrile states. If cystitis is a prominent factor and the patient complains of frequency and dysuria, it is my practice to administer either serenium or pyridium, two tablets three times daily, and a teaspoonful every four hours of the following prescription:

Tr. hyoscyamus 1 1-2 oz.

Tr. opii, 2 drams.

Potass. acetate, 2 drams.

Aquae q. s. a. d., 4 oz.

This combination rarely fails to relieve the distressing symptoms of acute cystitis. Morphine hypodermically may sometimes be necessary for the pain of renal colic due to obstruction of one or the other ureter, more often on the right side. The foot of the bed should be elevated twelve to eighteen inches, to relieve to some extent the pressure of the uterus on the pelvic ureters. If the patient is not too weak and sick, the knee-chest posture several times a day may be tried.

After a few days of this line of treatment, if the patient is not much improved, more specific medication should be started.

The identification of the infecting organism should have been established so that this may be planned intelligently, but as previously stated, the *B. coli* is usually at fault. Therefore, if it is impracticable to have a bacteriologic study made, it may usually be assumed that one is dealing with this organism. The drugs most likely to give results, and the ones I have most commonly used, are sulfanilamide and mandelic acid. Sulfanilamide is usually started with one tablet every four hours. This is increased to two tablets every four hours in a day or so. This dose need rarely be exceeded in my opinion. Sodium bicarbonate is administered with the sulfanilamide. The chief precaution in the use of this drug is a fairly frequent check of the red cells. The disease itself causes considerable anemia, and the drug should be discontinued if the count goes progressively downward. The cyanosis accompanying the use of this drug should be disregarded if the red count is satisfactory. If three or four days' administration fails to bring about improvement, it should be discontinued and something else tried. If improvement has occurred, however, it should be continued. I have administered this drug almost continuously for many months in some cases without mishap. Also, the only drug which has caused unfavorable reactions when administered along with sulfanilamide is epsom salts.

Mandelic acid is the next most satisfactory urinary antiseptic. The chief difficulty I have met in its use is gastric intolerance. If tolerated, it should be given in the dosage of 120 to 180 grains daily. Specific instructions as to diet should be given, eliminating all alkaline ash foods. This point is probably often neglected. At least daily, or still better, several times daily check of the urinary pH should be made, which is easily and quickly done with nitrazene test papers. If proper acidification is not obtained, ammonium chloride should be given in fairly large dosage, and if acidification is still not satisfactory, the mandelic acid might as well be stopped.

If the above treatment has not brought

about great improvement, it is certainly time to think of other measures, and indeed, if the patient appears quite toxic or if pain in one or the other flank is an important feature, cystoscopic treatment should not be further delayed. There has been an impression among some medical men that cystoscopy on these patients causes abortion. It is true that some of them abort after cystoscopic drainage, but they would most assuredly have aborted anyway, or possibly have had worse complications than abortion without cystoscopy. This procedure can be done almost or quite painlessly by the use of local, caudal, or even general anesthesia, depending upon the pain threshold of the individual patient. Its main object is to pass catheters to the obstructed kidney or kidneys, but at the same time a more or less complete urologic study may be carried out if indicated. The primary object being drainage of the kidneys, large size catheters should be passed, or even better, two or three catheters may be passed on each side. Irrigation of the retained catheters with some antiseptic solution should be carried out every three or four hours, more for the purpose of keeping them from becoming plugged than for the effect of the antiseptic on the infected kidney. Striking improvement is usually seen 24 to 48 hours after insertion of the catheters, manifested by a drop in temperature and an increase in comfort.

Fluids should be forced at this time, and often best results are produced by intravenous infusion of glucose and saline solutions, 2000 or 3000 c. c. daily. There is much difference of opinion in regard to how long the catheters should be left in situ. Traut<sup>1</sup> states that he never leaves them in over three or four days, while Crabtree<sup>6</sup> and others leave them in for long periods. My practice is to leave them in as long as they seem to be doing good. It may be necessary to change them at intervals if they become plugged or if they slip out. I feel that if the patient is holding her own, that this treatment may be kept up indefinitely. Blood transfusion is valuable at this stage, as anemia almost always be-

comes marked. If the patient can be carried along in this manner until the fetus is considered viable, a great load is lifted from the obstetrician's shoulders. If the patient fails to improve, runs higher fever, becomes more toxic, and if nitrogenous waste accumulates in the blood stream, the termination of the pregnancy is, in my opinion, absolutely necessary. Here, too, there are differences of opinion due probably to different experience. For example, Francka<sup>3</sup> states that abortion in these cases is never justifiable, while Traut<sup>1</sup> says if the non-protein nitrogen of the blood shows a steady increase, the emptying of the uterus becomes mandatory. My own opinion agrees with the latter, as has already been stated. Following the emptying of the uterus, recovery practically always ensues. Convalescence, however, may be greatly prolonged, and these women should be kept under observation until the physician is assured that the urinary tract has returned to normal or as near normal as is possible.

#### CONCLUSION

It is my belief that much future disability results from insufficient attention being paid to the proper restoration of renal function following severe cases of pyelitis of pregnancy, and that such disability may be largely prevented by proper care.

#### REFERENCES

1. Traut, Herbert F.: Pyelitis complicating pregnancy, *Am. J. Surg.*, 35:273, 1937.
2. Drexler, Leo S.: Pyelonephritis associated with pregnancy, *Urol. & Cutan. Rev.*, 39:697, 1935.
3. Francka, W. F.: Pyelitis complicating pregnancy, *Radiologic Rev.*, 58:208, 1936.
4. Woodruff, Stanley R. and Milbert, Arthur H.: Roentgenographic studies of the urinary tract during and after pregnancy, *J. A. M. A.*, 3:1607, 1938.
5. Sugar, Herbert: Urinary tract infection in women; its relationship to pregnancy, pyelitis and the nephritides, *Urol. & Cutan. Rev.*, 42:187, 1938.
6. Crabtree, E. Granville; Prather, George C. and Prein, Edwin L.: The management of pyelitis in pregnancy, *Am. J. Surg.*, 38:50, 1937.

#### DISCUSSION

Dr. W. E. Kittredge (New Orleans): Dr. Hargrove has just presented a most complete and thorough discussion of the problem of pyelonephritis of pregnancy. He has carefully gone over each fundamental point concerned with this disease and I am sure that the information here given you

will be of practical value to all who treat this condition.

There are several points in this discussion which bear emphasis. One is that the question of etiology has never been completely understood. When considering all the factors involved it appears that both mechanical pressure and hormone imbalance play a part in causing the dilatation of the kidney pelves and the upper two-thirds of the ureters in these cases. It is certainly significant to note that certain other conditions within the pelvis associated with enlargement of the uterus are not nearly so prone to produce this obstruction, and also that the dilatation in pregnancy can occur before the gravid uterus has attained sufficient size to cause much obstruction. This all points to at least a partial hormone role in the etiology.

Another point which I think should be emphasized with regard to the management of these cases is that since stasis of urine in the upper urinary tract is the underlying cause of this infection it is obvious that the infection cannot be actually cured as long as this stasis exists. For that reason we take the attitude that the infection should be kept under clinical control throughout pregnancy and then cured after delivery. We undertake to keep these patients comfortable and free of fever by whatever means is necessary during pregnancy, and then set out to eliminate the infection entirely during the postpartum when the above mentioned stasis has been physiologically relieved.

I agree with Dr. Hargrove in saying that it is not only safe but necessary to cystoscope some acute cases of pyelitis of pregnancy in order to bring about clinical improvement. Inlying ureteral catheters can safely and conveniently be left in for as long as six-weeks in severe cases in order to provide the necessary drainage and irrigation facilities for the kidney pelves. This statement is necessary because there still exists a school of thought to the contrary which fears the possible complications of cystoscopy in the later months of pregnancy, chiefly that of miscarriage. The truth is that the acute infection itself is far more dangerous to the patient's health than is the cystoscopy which relieves it.

In closing I should like to present three x-ray slides which illustrate the changes occurring in the upper urinary tract to produce stasis and therefore infection. The first slide shows you a bilateral pyelogram and ureterogram during pregnancy in which the changes are not abnormal but are simply those to be expected in any pregnancy. This patient was not infected as yet, at least, when these pictures were made. The second slide shows the enormous dilatation of the ureters and kidney pelves in a woman six months pregnant who was infected. This happens to be a rather marked case but I can tell you that this patient responded well to treatment and that after delivery the dilatation which is seen here disappeared. The

third slide is a ureterogram of this last case which shows beautifully that the dilatation of the ureter is confined to that portion above the pelvic brim and that the lower ureter is of normal size.

Dr. John G. Menville (New Orleans): Prophylaxis is important in the treatment of pyelitis of pregnancy. If organisms are eradicated from the urinary tract of women during the early stages of pregnancy, many cases of pyelitis can be obviated.

A point worthy of repetition is the handling of acute pyelitis in the late stages of pregnancy. During this stage it is not advisable to give large doses of urinary antiseptics ordinarily prescribed in early pregnancy or during the convalescent period. It is more important to control the infection with sufficient medication and attempt to eradicate the organisms from the urinary tract when the patient can tolerate a more strenuous treatment. Intravenous fluids are a valuable aid in controlling the acute infections of the upper urinary tract. Unfortunately, palliative measures are not always successful. Catheterization of the ureters is frequently necessary to establish proper drainage, and, together with surgical intervention and the termination of pregnancy, it is often a life saving procedure.

It necessarily follows that all women should have an accurate examination of the urine following delivery. If this is carefully carried out, we can save many of these patients from having "kidney trouble" with each succeeding pregnancy.

Dr. U. S. Hargrove (In conclusion): There is only one other point which I would like to stress. The most ticklish question to be handled in severe cases of pyelitis of pregnancy is the question of emptying the uterus. Any one who does very much of this work sooner or later will run into some difficult situation. The doctor believes that the patient's life is in danger and the priest believes otherwise, and there is liable to be friction. Most writers, especially men practicing in this line of medicine, however, I am quite sure feel that abortion is sometimes absolutely necessary in order to save the patient's life.

---

## THE TWISTED NOSE\*

WALDEMAR R. METZ, M. D.

NEW ORLEANS

In its normal relationship the nose occupies a central position among the structures of the face. Because of trauma, very occasionally by congenital anomaly, it is deflected from the mesial plane so that the

---

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 25, 1939.

face takes on an unbalanced and one-sided appearance. Such a displacement of the skeletal anatomy of the bony arch or septum is spoken of as the twisted, deflected, deviated or crooked nose. The condition may be confined to fracture-dislocation of the nasal bone, the frontal processes of the superior maxilla, the cartilaginous septum and also the alar cartilages, the columella and the nasal tip. A combination of one or more of these structures in lateral abnormal position is the rule and not the exception.

As contrasted with depressed fractures of the nose in which the blow is directed from the front, the twisted nose is a result of violence at an angle either on one side or the other.

The cartilaginous septum when detached or sprung at its junction with the nasal bone, at its lower attachment to the nasal spine of the superior maxilla or by bowing at any part of its extent, heals by firm adhesions and in false positions. This dense scar tissue becomes intimately blended with the component parts in the immediate neighborhood and, depending on the time elapsing between injury and repair, is measured the ease or difficulty of good reduction.

Since trauma plays the etiologic role in practically all cases, it seems reasonable to expect that prompt, adequate and thorough handling of these patients would obviate secondary operative procedures. As a matter of fact, what should be a comparatively simple reduction and immobilization of nasal fractures and dislocations when seen early, becomes a tedious and off-time difficult plastic operative repair when encountered late.

There unquestionably does exist an indifference and a lethargy among many physicians in the treatment of nasal injuries. But there is also some reasonable explanation why results in fractures of the nose are discouraging even in the most conscientious hands. The loose skin and areolar tissues of the face about the nose react promptly to trauma in the form of edema, swelling, ecchymosis and hematomas, as

well as hemorrhage from mucous membrane. The real state of affairs may be so masked by soft tissue distortion that fracture-dislocations with displacement of the nasal bone and septum are easily and frequently overlooked. I have found that x-ray diagnosis by a competent roentgenologist not only brings out fractures and deflections of the bony arch but, by special soft tissue technic, will often show a twisted septum. I believe it extremely important to check every nasal injury with x-ray.

It must be borne in mind that post-traumatic functional deficiencies are even more important than immediate appearance, a point often overlooked in the repair of nasal injuries. Subsequent submucous resection may be prevented if proper reduction of nasal fractures is carried out, in the beginning, on anatomic principles.

While, as stated above, usually a combination of structures enters into the twisted nose, it is necessary for the purpose of clearness to consider the structure separately.

#### THE BONY ARCH

This portion of the nose is composed of the nasal bones and the frontal or so-called nasal processes of the superior maxilla. Deflections consist of these bones being shifted to one or the other side of the face. These fractures are practically always impacted. Deviation occurs to the convex side. If the diagnosis is correctly made, digital manipulation, the most frequently used method, is inadequate because it is practically impossible to disimpact these fractures by such means. The indication is elevation of the bones from within outward, either with nasal forceps or some type of blunt instrument passed inside the nose and levered upward. This cannot be successfully done as a rule except under general anesthesia. Following the disimpaction, digital molding of the fracture is usually successful followed by proper splinting.

In the twisted nose that is observed after varying periods from the time of fracture and with which this paper is chiefly concerned, the problem is an entirely different

one. The bones are healed in vicious union in lateral displacement and by rigid callus. The indications are obvious, namely, infraction and replacement to the mesial plane of the face. This is best accomplished by an intranasal saw line which I feel is infinitely superior to the chisel which in my hands has been most unsatisfactory. There are some operators who are not so minded, and who employ the chisel with great dexterity. However, it is sometimes dubious as to how a bone will crack under the impetus of a chisel and hammer and the possibilities of breaking off free fragments is not to be overlooked.

#### TECHNIC OF OPERATION

The approach is through a small incision at an area in the mucosa overlying the pyriform space either with a number 15 Bard-Parker blade or a double-edged scalpel. The skin and subcutaneous tissues are

complete immobilization following the operation is also difficult due to sliding of the overlapping edge. It is my custom to remove this triangular segment of bone, the size of which depends on the space necessary for reduction of the nose back to the midline, before cutting through the frontal process on the convex side. The apex of this triangular segment is directed to the mesial side of the inner canthus of the eye, the base lying over the pyriform space. Following saw fracture through the convex side, digital pressure is now made towards the midline, the naso-frontal suture usually giving way without instrumental interference. The nose is thus mobilized, and is placed back to the center of the face.

The operation is facilitated if the patient conveniently presents a hump nose, since removal of the hump creates a space between the nasal bones (fig. 1). Narrowing



Fig. 1. Twisted nose with large hump: A and B before correction: C and D following correction.

thoroughly undermined in an upward direction along the sides of the frontal processes directed towards the naso-frontal suture. The periosteum is separated with a periosteal elevator and the right-angled saw introduced. By short rapid strokes the frontal process is sawed through. Except in deviations of very moderate degree it is necessary to excise a triangular piece of bone from the concave side so that room is made when the nose is replaced back into the midline. Unless this is done there is always an over-riding of bone with subsequent enlargement and it is found that

of the nasal bridge, as in the operation for hump nose, permits the operator to shape the nose back into the central position without necessitating the excision of the triangular piece of bone from the concave side mentioned above. It is necessary in sliding the nose back to the medial plane that the perpendicular plate of the ethmoid be fractured. The tendency of the deflected nose to swing back to its original deformity is due often to the perpendicular plate whose continuity has been left uninterupted.

## THE CARTILAGINOUS SEPTUM AND NASAL TIP

Fractures and dislocations of the septum may result in either deviation of the entire septum, by swinging the lower half of the nose to one or the other side, or it may include only deviation in the region of the tip, resulting in a flat appearance of the nasal tip on one side and an over convexity of the opposite side. The dislocation of the septum at the nasal spine usually results in the anterior portions of the septum invading one or the other nostril and can be easily seen when the head of the patient is thrown back.

Correction is made by freeing the septum from the skin over the entire dorsum of the nose, the incision being continued downward between the columella and the septum to the nasal spine. The septum is

and the nasal bone the use of septal forceps will often be all that is necessary to break up adhesions and restore the septal cartilage back into a central position. The importance of breaking up old adhesions cannot be over-emphasized.

## DRESSINGS AND SPLINTS

It is imperative following the reduction of the twisted nose that an adequate method of immobilization be instituted. This type of deformity has a great tendency to recur unless thorough maintenance is secured usually in an over corrected position. Various types of splints and retention apparatus have been devised to this end. The more elaborate ones are represented by the type of the late Joseph of Berlin and of Safian of New York. An illustration of the Safian apparatus is pictured in Figure 2.

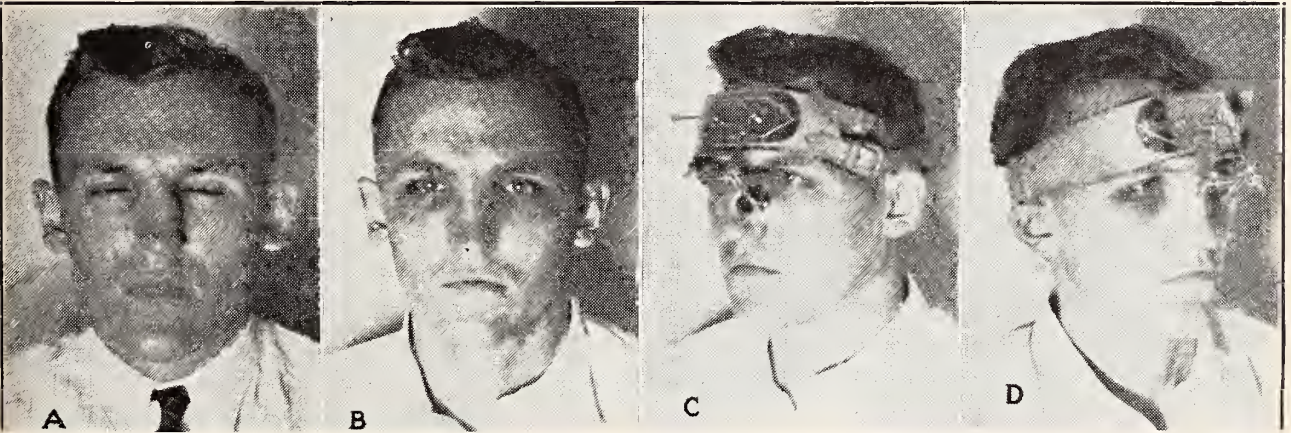


Fig. 2. Traumatic twist of nose to left: A and B before and after correction; C and D with Safian retention splint.

now completely visualized and the deflected portion is freed from its abnormal attachments. Separation of the septum from the nasal spine is necessary in all low deviations. Incision through the mucosa and the cartilage on the concave side at right angles to the cartilage is necessary, care being taken not to disturb the mucosa on the convex side. If the nose can stand some shortening the curling up of the septal cartilage at the columella can be excised, facilitating the correction of the deformity. When the deviation is near the junction of the septum

Soft lead splints and splints of dental compound are two materials that are employed for making a form fitting mold over the entire nose held in place by adhesive plaster. In this type of deformity we have not found these to be very satisfactory. Capping of the upper teeth with the incorporation of heavy wire which projects from the angle of the mouth and upward and then bent again towards the nose with the inclusion of dental compound at the end for molding the side of the nose has given good

support. However, patients find such a retention method inconvenient and unpleasant (fig. 3). A football head-gear

starting from the forehead, running just above the ear, downward over the mastoid process and below the occipital protuber-

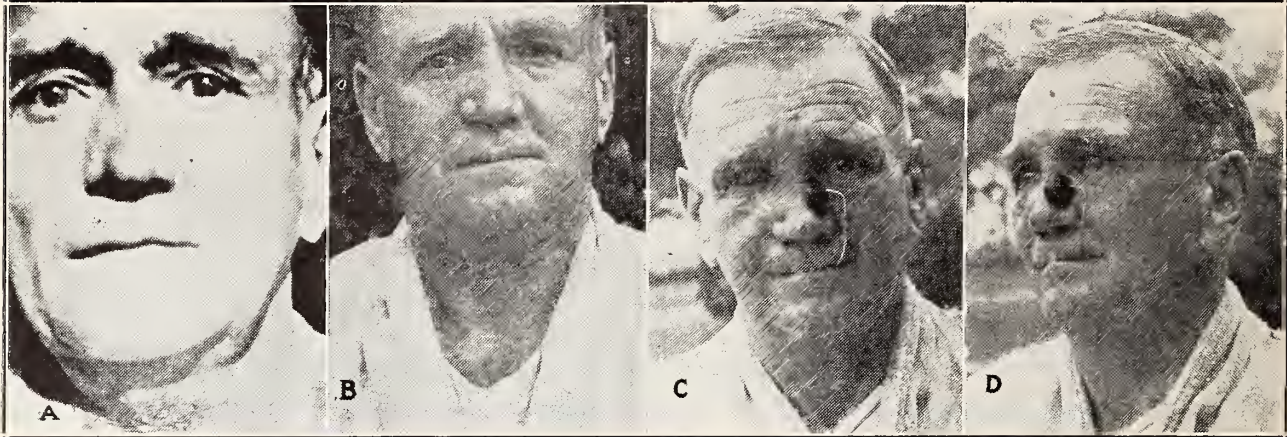


Fig. 3. Aggravated twist of nose to left involving only nasal bone and not frontal process of superior maxilla: A and B before and after correction: C and D showing type of nasal splint with wire incorporated in cappign of upper teeth. Dental mold is attached to end of wire for pressure against nose.

with wire attachment from above down towards the side of the nose has also been used. I have found the following method to be quite satisfactory and economical: A stockinet is placed over the entire head, a crown of plaster of paris is placed over this,

ance in the back, continuing across to the opposite side and back to the forehead. A piece of ordinary coat-hanger wire is incorporated with the plaster on one or both sides, the wire being turned downward and then inward to the nose. The wire is hooked on the end and a molded piece of dental compound serves as a pad for pressure of the wire against the nose. The coat-hanger wire has sufficient strength to maintain as much pressure as is necessary for retention (fig. 4).



Fig. 4. Author's type splint consisting of crown of plaster of paris over stockinet, with incorporation of ordinary coat hanger wire, with dental mold for pressure over nose. This type splint is economical and comfortable.

#### CONCLUSIONS

1. The twisted nose is a common deformity that early and adequate primary reduction of nasal fractures would prevent.
2. X-ray diagnosis of all nasal injuries is advocated.
3. Functional deficiencies could be obviated by proper reduction based on anatomic lines.
4. Deflections of the bony vault are best corrected by excision of a triangular segment of bone from the concave side.
5. Freeing and separation of all adhesions of the twisted cartilaginous septum in its false position is essential.
6. Firm immobilization by proper splinting in an over corrected position is neces-



sary for a good operative result. A simple, economical method is described.

#### DISCUSSION

Dr. Charles L. Cox (New Orleans): I have had the pleasure of seeing some of these results and I think they look even better than they do on the screen.

There is only one thing that I want to mention which was emphasized by Dr. Metz in his paper. If the general surgeon or otolaryngologist could get these patients shortly after injury and reduce the fracture, most of these operations you have seen here, would be obviated.

Dr. Waldemar R. Metz (In conclusion): I would like to add that in recent fractures, in the restoration of the nasal septum to midline a wide-mouthed septal forceps is the only thing usually necessary.

In the type of cases shown, local anesthesia was used. In recent fractures, with edema and swelling where a great deal of manipulation is necessary, general anesthesia is the method of choice.

—o—

### TREATMENT OF EMPYEMA\*

RAWLEY M. PENICK, JR., M. D.†

NEW ORLEANS

In spite of the remarkable improvement which has occurred in the treatment of acute empyema since the World War and the investigations of the Empyema Commission, many of its problems still remain to be solved. In this communication, which concerns only acute pyogenic empyema, the need for a further improvement in the management of these cases will be pointed out, the principles underlying therapy will be discussed, and a method of treatment, or, rather, the modification of an existing method, will be presented and its results outlined in a small series of cases.

The main object of all therapy is to save life and restore the patient to health, without residua of his disease. An important though entirely secondary consideration is

the length of time necessary to effect a cure.

The objects of treatment in empyema are the same as those in any other disease. Our first consideration must be, as always, to save the patient's life. Our second object is so to direct treatment that the unfortunate sequelae of chronic empyema will be prevented. The period of hospitalization, while subordinate to the first aims, is none the less important, and any treatment which reduces the length of illness, while at the same time fulfilling the first two objects, is worthy of attention.

#### MORTALITY

The mortality of empyema has been shown to be dependent upon several factors which vary in different communities as well as from year to year. Heuer observed a relationship between deaths from pneumonia and empyema: In those years in which the pneumonia mortality is low, he pointed out, the mortality from empyema is also low; conversely, when the pneumonia mortality is high, the death rate from empyema mounts also. Heuer explained this relationship primarily on the differences in the type and virulence of the infecting organisms, which, in turn, have a definite relationship to the incidence and character of complications. This observation has been repeatedly confirmed, though for some inexplicable reason it was not borne out in the studies made by Maes and Veal in New Orleans for the ten year period ending in 1933.

Deaths from empyema are usually deaths from its complications, which makes it difficult to compare mortality rates in different localities and different years, because of the differences in infecting organisms. The question of mortality, therefore, may be dismissed with the statement that, provided correct principles of therapy are employed, it is not dependent upon the particular type of treatment used. These principles I shall discuss later. For the present I desire to consider mortality independent of treatment, for the method which is to be described herewith fulfills all accepted principles.

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

†From the Department of Surgery of the School of Medicine of Louisiana State University, and Charity Hospital of Louisiana at New Orleans.

## CHRONICITY

The most distressing sequela of acute empyema is chronic empyema which may be said, arbitrarily, to be present in any case in which the cavity persists for 90 days or more. In a survey of 258 cases of empyema at Charity Hospital of Louisiana in New Orleans, it was found that 11 per cent of those who survived the acute stage of the disease developed chronic empyema. If only adults are considered, the percentage rises to 16. There is every reason to believe, too, that if all these patients had been followed up carefully, an upward revision of the figures would be necessary.

These rates, although much higher than they should be, are perhaps lower than for the country at large. The incidence of chronicity is undoubtedly related to methods of treatment, as well as to the manner in which any special form of treatment is conducted or applied. Misapplication of the method is probably the more important cause of failure, because it is undeniable that bad results often occur in the hands of one surgeon with methods which have proved entirely satisfactory in the hands of others. The principles of treatment, therefore, must be thoroughly understood, regardless of the type of therapy instituted.

## OBLITERATION OF THE CAVITY

Any discussion of the prevention of chronic empyema must necessarily begin with a consideration of how acute empyema heals. Curiously enough, we know comparatively little about this very important subject. We know, of course, that the cavity must be obliterated before complete healing can be accomplished, but the exact mechanism by which this takes place is complex and not well understood.

The elevation of the diaphragm and the deviation of the chest wall both play a part in producing the necessary obliteration of the cavity. The expansion of the lung is probably of even greater importance, though how it occurs is not clear. It is true that expansion occurs with any increase in intrapulmonic pressure, but such an in-

crease is transient and not maintained, which makes it difficult to understand how the process can be of material aid in healing the two pleural surfaces together. Heuer has suggested that the lung expands as the result of a gradual pulling together of the two pleural surfaces by a contraction of the advancing granulation tissue at the periphery. The suggestion is probably correct. On the other hand, such a supposition implies that healing occurs only in the area of this advancing thin line, a fact which in itself would limit the rapidity of the healing process.

My own belief is that healing takes place in this manner, but may occur over much larger areas simultaneously, the rate of healing depending on the size of the areas approximated. If this is true, anything which will facilitate early expansion of the lung and early approximation of the pleural surfaces will facilitate healing, provided, of course, that infection or avascularity does not prevent it.

All these facts are related to the formation of chronic empyema, which results from a persistence of the cavity until the walls are covered with a thick, avascular tissue. Such tissue, if it can heal at all, will heal only very slowly, and the corset-like effect over the lung will often prevent expansion.

It is clear from what has been said that one of the first principles in the prevention of chronic empyema is to secure early re-expansion of the lung in order to promote early healing between the visceral and parietal pleurae. Infection must necessarily be combated, but even while it is being completely controlled, efforts should be made to obliterate the cavity. The chief difficulty encountered in the course of this effort is to obtain adequate drainage and adequate expansion at the same time. Various methods of closed drainage accomplish one or the other of these two things but none that I know of accomplishes both. In most methods of closed drainage, satisfactory suction is obtained at the expense of inadequate drainage. On the other hand, in open drainage excellent drainage is usually

obtained but no provision is made to facilitate expansion of the lung.

#### PRINCIPLES OF TREATMENT

Bearing these desiderata in mind, I have examined the principles of the treatment of empyema as they are laid down in the literature. They cover three chief points: Adequate drainage; the maintenance of nutrition; and the sterilization of the cavity. It is generally agreed that adequate drainage is the most important consideration of all, and it is also agreed, after many unfortunate experiences in the last war, that it is exceedingly dangerous to institute open pneumothorax before the pleural surfaces have become adherent around the cavity.

The maintenance of nutrition is obviously important in all diseases, and is particularly important in empyema. As to sterilization of the cavity, adequate drainage is usually sufficient to accomplish that, and chemical sterilization is little more than an aid.

As a practical consideration, emphasis should be put upon the necessity for the maintenance of adequate drainage until the cavity has actually been obliterated. This point, like re-expansion of the lung, which I personally consider very important, is decidedly neglected. One author, for instance, advocates removal of the drainage tube when the patient's temperature approximates normal and the drainage becomes thin. Such a plan may actually cause a persistence of the cavity; the external opening is small, even if the residual cavity is large, and the opening, with the tube removed, usually heals enough to interfere with drainage or check it completely.

In the light of these facts I believe that in the treatment of acute empyema emphasis should be placed upon the following principles: (1) Adequate drainage until the cavity has been demonstrated to be obliterated; (2) avoidance of early open pneumothorax; (3) early obliteration of the cavity.

#### PLAN OF TREATMENT

On the basis of these principles I have evolved a plan of treatment which is a

modification of existing methods of closed drainage. To carry it out I have designed an apparatus which allows a steady flow of two or three gallons of water through the cavity every 24 hours. The objection to many other forms of closed drainage, that very little of the irrigating fluid actually gets into the cavity, is thus overcome. Even though the actual opening in the chest is small, continuous irrigation with this amount of fluid provides excellent drainage. The pressure in the cavity is subatmospheric at all times, which causes early expansion of the lung and promotes early healing. This method, I believe, adequately fulfills all requirements postulated in the principles of treatment which I have just laid down.

As the cavity becomes progressively smaller, it is my practice to visualize it from time to time by the injection of lipiodol, after disconnecting the apparatus, which can be done without disturbing the indwelling catheter. The outline of the cavity is thus visualized, and the diminution in size, as well as the final obliteration of the cavity around the tube, can be followed more accurately and reliably by this plan than by the measurement of volume, particularly in small cavities. We have some evidence that the shape of the cavity is related to the rapidity with which healing occurs.

#### DESCRIPTION OF APPARATUS

The entire apparatus is attached to an ordinary infusion pole, the various parts being strapped onto it with adhesive tape. The infusion bottle, as well as the receptacle on the floor to catch the overflow (which are not shown in the illustration) are standard equipment. The infusion bottle is attached to the top of the pole, and the end of a tube leading from it passes into the upper cylinder, which, like the lower, consists of glass and is 2 1-2 inches in diameter. A rubber stopper with two holes to carry the glass tubing is placed in the bottom of each cylinder, as shown by the diagram.

The upper cylinder acts as a safety valve, which functions by allowing the water to

overflow if it rises to the top of the highest tube. The positive pressure which can be maintained in the cavity is thus limited even though the outlet becomes closed. For this reason this cylinder is strapped to the pole at such a level that the end of the highest (overflow) tube is just above the chest of the recumbent patient.

The lower cylinder acts as a water trap which prevents the entrance of air into the outlet tube. The subatmospheric pressure in the cavity will equal the vertical

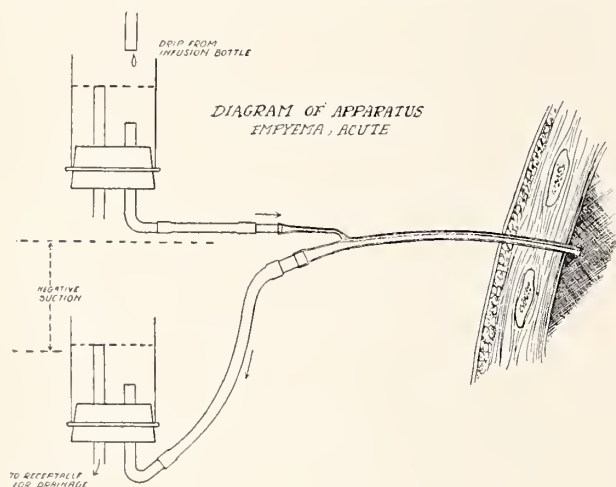


Figure 1

distance between the cavity in the chest and the surface of the fluid in the lower cylinder. This fluid will never rise above the top of the highest tube, because when it reaches that level it overflows and runs out into whatever receptacle has been placed on the floor to receive it. The end of the overflow tube does not have to be under water.

A double-lumen indwelling catheter is used in the chest, and the apparatus is connected as shown in the diagram. Dakin's solution, asochloramine, or any other similar agent may be utilized as the irrigating fluid, but I have personally found sterile water entirely satisfactory.

By the use of this apparatus, from two to three gallons of water will run continuously through the cavity in the chest every 24 hours, while at the same time subatmospheric pressure is maintained.

#### RESULTS OF TREATMENT

Our figures for this method are based on nine cases. No conclusions are justified

concerning the mortality, for the one patient who died, a child, could probably not have been saved by any type of therapy. He had bilateral pneumonia and bilateral empyema, and required oxygen during his entire illness.

The use of the apparatus has been attended with very few difficulties, certainly fewer than with other methods of closed drainage. Clogging of the tubes has been an infrequent occurrence. Furthermore, patients with bronchial fistulae ordinarily tolerate this type of treatment very well. In those who do not, in my experience not more than 20 per cent, the fistula is usually large and is situated in the lower part of the cavity, so that irrigation produces coughing. Such cases are better handled by open drainage.

The length of time necessary for healing is the consideration in which I have been most interested. In the nine cases available for study the maximum period was 48 days, the minimum 23, and the average 36. No patient was considered healed until both the cavity and the tract left by the tube had been completely obliterated. It is scarcely necessary to point out that the period required for complete healing cannot be compared with mere hospital stay days in other cases because of the rather common practice of allowing patients to leave the hospital after open drainage, when large cavities are still present. It is important to note that our method has not been used in patients with small cavities; in such cases drainage can be done safely and the patient allowed to leave the hospital promptly, returning to the clinic for treatment. Our figures are based on large cavities, in seven of the nine cases in adults, and no small pockets of pus are included to reduce the average time for healing which we have stated.

The figures obtained in this small series of cases compare favorably with the figures reported by Graham and by Heuer. Our average time was 36 days for complete healing. Graham, reporting from a children's hospital, found 38 days the average time for healing, his statistics including only

children, whose cavities are usually smaller than those of adults and who require, therefore, a shorter time for healing. Heuer reports an average of 39 days, his statistics also including many children and many small cavities. In view of these facts, I believe it can be assumed that the results with the method of treatment which I have described are better than those reported in the literature.

#### SUMMARY

1. The causes of the poor results in the management of acute empyema are discussed, and the relative frequency of chronic empyema is pointed out.
2. The process of healing in acute empyema is discussed.
3. The principles underlying the therapy of acute empyema are examined and important principles are emphasized.
4. A new method of closed drainage is described.
5. The results of this method are reported for a series of nine cases.

#### BIBLIOGRAPHY

- Graham, E. A.: *Surgical Diseases of the Chest*, Lea and Febiger, Philadelphia, 1935.
- Heuer, G. J.: *Acute empyema*, *J. Thoracic Surg.*, 1:461, 1932.
- Maes, U., Veal, J. R., and McFetridge, E. M.: *The mortality of empyema*, *J. Thoracic Surg.*, 4:615, 1935.

#### DISCUSSION

Dr. M. E. DeBakey (New Orleans): All of us are fully cognizant of the unfortunate sequelae which occur in empyema and the difficulties encountered in the treatment once the condition becomes chronic. The incidence of chronicity in empyema varies between 5 and 15 per cent of all cases.

The most important factors in the prevention of chronic empyema are adequate drainage, early re-expansion of the lung, and rapid sterilization of the involved area. Hedbloom, a number of years ago, showed that in over 50 per cent of 310 cases chronicity was due to inadequacy of drainage. Inadequate drainage obviously prevents early re-expansion of the lung and enhances the continuation of infection. Thus any method of therapy which is based upon the principle of producing early drainage is rational.

Dr. Penick's innovation is particularly noteworthy because it is simple, safe, and based upon rational principles. It accomplishes two important purposes: adequacy of drainage and mechanical cleansing. The importance of the former has been

recognized since the Hippocratic era but the significance of the latter has not been sufficiently appreciated. The desirable effects produced by the mechanical cleansing of purulent cavities depends probably upon the principle of biologic antisepsis as elaborated by Sir Almroth Wright and his followers. The bacteriostatic powers of normal plasma, serum, and lymph are considerable and in the presence of infection become even greater. It would appear that this is due in great measure to the presence of antitryptic substances because the addition of trypsin causes these fluids to lose their bacteriostatic powers. In purulent cavities tryptic ferments are produced as a result of the disintegration of tissue cells and especially leukocytes. Whereas a certain degree of this process is desirable because it produces liquefaction of necrotic tissue and thus facilitates its removal, a maximal amount is undesirable because the liberated tryptic bodies tend to neutralize the antitryptic power of the tissue fluids. Thus it becomes clear that mechanical cleansing of purulent cavities is effective because it removes tryptic substances and consequently permits greater efficacy of the bacteriostatic powers of tissue fluids.

Dr. J. A. Danna (New Orleans): Empyema results from infection of the pleural cavity either from the chest wall side or pulmonary side and usually it is the pulmonary side. When infection first takes place, if it takes place on the surface of the lung, it starts as a small infection; as a small cavity. If you follow your medical cases very accurately you will get these empyemas when small and probably you will be able to cure them much quicker.

The empyema cavity is going to persist until you do two things. One is to get rid of all the pus and tissue debris in the cavity and the other is to stop the focus of infection which originally infected the cavity. I think that Dr. Penick's method accomplishes that very well; particularly well because, as brought out, it washes out products of infection and keeps a clean cavity. I do not think it is necessary to keep up drainage until after the cavity is closed. What happens in most cases is the drainage stops when the drainage tube becomes surrounded by granulation tissue. You can then inject that kind of a sinus with whatever you please and you will not penetrate. If you get an x-ray picture you will find the cavity there and the way that cavity closes is by gradual absorption of the locked-in air which finally brings the lung surface to the chest wall and in that way brings about healing. If you have a pleuro-pulmonary fistula, I do not care what method is used there will be no healing of the empyema cavity until that opening closes and the treatment, whatever it is, must be maintained until that happens.

I want to say this one word about Dr. Penick's cases. I have seen a number of them. They have all been bad cases and if he can get those results

in bad cases, I think he is going to do even better in other cases.

Dr. S. W. Boyce (Shreveport): I certainly approve Dr. Penick's method of treating these cases. I have no large series of cases to report as I have no Charity Hospital services. My work with empyema is entirely that of my private practice, but I have never treated a case of empyema since I began the practice of medicine except by this technic. I may be wrong, but I have never done a rib resection for empyema.

I use a higher degree of negative pressure than Dr. Penick uses but I see no material objection to the pressure he uses. I theorize that a higher degree of negative pressure would expand the lung to fill the chest cavity more rapidly and thus tend to close gradually the empyema cavity. I have always felt that way, and now, since the advent of the frequent use of pneumothorax in tuberculosis, I am more convinced that the principle is true. I disagree with one speaker when he stated that the cause of chronic empyema is inadequate drainage. I think it is too much drainage. When you resect a rib and allow free access of air to the cavity, we have learned from treating tuberculosis with pneumothorax that the lung collapses down as far as it can go. In chronic empyema it collapses down as far as the pleural adhesions will allow it to go. Then, you have the job of refilling this empty chest cavity with something. It is trying to obliterate this empty space that causes deformity, or scoliosis and it is only by nature's efforts that this cavity is ever obliterated.

I wish to report a case of acute empyema of five days' duration in which, when closed drainage was instituted and the pus was removed, a continuous flow of air followed it, indicating a bronchopleural fistula. I had never had experience with such a condition and at the time found nothing in the literature available about it. I felt that with free access of air by this fistula in an acute case like this where adhesions were at a minimum, that the lung would collapse almost completely. If I continued closed drainage, I would necessarily hold open the bronchopleural fistula and thus make it chronic, but if I stopped the pleural aspiration the collapse would approximate the walls of the fistula and after a few days I felt that they would heal to close it. With this idea, I removed the aspiration of the chest for a period of five days and then replaced it and treated the case as a simple case of empyema with closed drainage. It went on to healing within a period of one to two weeks as a case of simple empyema.

I am frank to confess that I do not know how to treat chronic empyema. I can see no good in Dr. Penick's method for chronic cases.

Dr. Penick (In conclusion): I have had a good many friendly arguments concerning empyema with Dr. Danna, which I think we both enjoyed. I feel that Dr. Danna's method has much to recom-

mend it. Perhaps from the standpoint of principles involved, it is good. On the other hand, I feel that it is difficult to determine when the cavity has become sterile and therefore how long to continue aspiration.

My experience indicates that about 20 per cent of patients with acute empyema and bronchial fistula will not tolerate this type of drainage. I think this is because, in these cases, the fistula is rather large and wide open and is situated in the lower part of the cavity. When these conditions were present, I treated them with open drainage.

---

## SOME PROBLEMS IN THE SURGICAL TREATMENT OF THYROID DISEASE\*

JOSEPH E. HEARD, M. D.

SHREVEPORT

Due to the fact that this section of our country is not located in one of the so-called goiter-belts, it is probable, and highly understandable, that diseases of the thyroid gland do not receive as much attention here as in other parts of the United States. Many cases of early thyroid disease are overlooked and a goodly number of advanced cases are recognized too late to gain the advantages of early therapy, thus missing the opportunity of possibly preventing the tremendous damage to many organs of the body. Fortunately, we are now becoming more goiter conscious, and most of us, when questioning a patient who complains of a fast pulse and nervousness, will immediately consider the thyroid gland.

As to the cause of hyperthyroidism, we may say that the real cause is not yet known. We are familiar with certain factors which are associated with hyperthyroidism or may predispose to its development, but the exact cause is not yet determined. One eminent authority, Crotti, feels that a certain fungus is the causative factor, and this man has carried out most convincing experiments to prove his point, but it seems that the medical profession of our country does not yet accept this ex-

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

planation. Evidently, we will never fully understand the goiter problem until the endocrine system is more clearly explained. Herein, doubtless, lies the key to the situation.

#### TOXIC ADENOMATA

The surgical problems of the thyroid deal almost entirely with the toxic goiters, adenomata, and cancer of the thyroid. The diagnosis of a well developed case of exophthalmic, or toxic goiter, offers no particular difficulty. The classical symptoms and physical findings, each known by someone's name, are usually present, enabling one to make an immediate diagnosis, but the mildly toxic, or borderline case, may require careful study and prolonged observation to arrive at the correct conclusion. In well advanced cases of exophthalmic goiter, the exophthalmos may be absent and the thyroid gland may be very small, with no apparent enlargement. The basal metabolism is at times misleading, and hyperthyroidism may be present with an apparently normal metabolic reading. The metabolism rate should be checked at intervals, as one metabolism test is not always satisfactory. I have seen in clinically well advanced hyperthyroidism, a metabolic rate well within normal limits and one week later thirty points above normal, and this where I feel there was no question of correct technic. In the study of hyperthyroidism, the laboratory is an indispensable aid, as there are many conditions present in this disease which can only be brought to light in the laboratory. Some writers lay great stress on the blood cholesterol, and its determination is without doubt a great aid, but we feel that a study of the metabolism is a more accurate guide. Most of the other laboratory tests are not practical, though interesting. However, a liver-function test, not only in hyperthyroidism, but in many other surgically treated diseases, is a great aid in determining operative risks.

In the surgical treatment of hyperthyroidism, some of the most important steps in obtaining a quiet convalescence and maintaining an almost negligible mortality,

are the proper preoperative care, and the selection of the proper time for operation. In this work, delay or loss of time is not much of a factor. If one were forced to operate on these patients during the peak of their toxicity, no doubt very few would survive. It is rather easy to quiet these cases and temporarily lower each one of its minimum toxicity, which condition unfortunately is transient and never lasting. Iodine, in the exophthalmic goiter, and should this fail, ligation of the superior thyroid arteries, will usually produce a satisfactory temporary stage of quiescence, which stage is the most favorable time to perform a subtotal thyroidectomy. Iodine seems to have little place in the treatment of goiter, except preoperatively in the exophthalmic type; if used in the toxic adenomata, exercise extreme caution. The prolonged and promiscuous use of iodine in the treatment of toxic goiter should be condemned.

After the person with toxic goiter has been prepared and the time is right for surgery, we steal the goiter when the patient is least suspecting operation. This method, we feel, is one of the important points in toxic goiter surgery. Such a method, combined with multiple stage operations, will successfully bring, almost without fail, even the most severe cases through the operative period.

The nodular goiter may give trouble in four different ways, two of which are serious, one especially so. The growth may spoil the curve of a pretty neck, which is distinctly not to the liking of the fairer sex. This type is usually responsible for pressure symptoms in the neck. There is the possibility of the non-toxic becoming toxic. The serious menace is the possibility of malignancy developing in some of the nodules. Most malignancies of the thyroid develop in this type of thyroid and should be regarded somewhat as we regard breast tumors. One can never be certain until he has the tissue under the microscope. It is estimated by most observers that 90 per cent or better of nodular goiters will cause serious trouble if they exist long enough. Patients who have had goiters removed

should be kept under close scrutiny, with repeated observations.

The symptoms and findings of the toxic nodular goiter are much the same as the toxic diffuse, except that the goiter is larger and nodular. Exophthalmos is rare and this type does not have the crises so often seen in toxic diffuse. Up to date, we feel that surgery is the only remedy which can be offered for any lasting relief. When operating on this type, an attempt should be made to remove all apparent small adenomata from the thyroid remnant. These small adenomata, if left behind at operation, will often later demand a second interference, resulting in much disgust to the patient and surgeon.

#### MALIGNANCY OF THYROID

Malignancy of the thyroid generally offers a rather bad prognosis, specially where there is no encapsulation of the growth. Sarcoma is supposed to be the most formidable, with adenocarcinoma a close second. Carcinoma of the thyroid is the only place in the body where the metastatic cells may assume the function of the normal cells, and cases of myxedema have been reported where the metastatic malignant growth has been removed.

From the standpoint of malignancy, the adenomatous thyroid is the type to be regarded with concern, since malignancy is never seen in the exophthalmic or toxic diffuse. Observers give from 2 to 5 per cent of all goiters seen as malignant. An adenomatous goiter in a person within the cancer age is a serious two-fold menace, as it may become toxic, or worse still, malignancy may develop. Such a goiter in such a person, when there is a history of sudden enlargement, which shows a firm nodular mass, is almost sure to be malignant. The malignant nodule in the thyroid does not necessarily have to be large before metastasis takes place. I distinctly remember a case of malignancy of the thyroid which was discovered by accident. The complaint of the patient was such as to require an x-ray of the skull, which plate, when examined, showed a metastasis in the bone. The original growth was then sought for

and a rather small nodular mass was found in the thyroid gland; the nodule later proved to be the original site of the malignancy. In malignancy of the thyroid, when there is no demonstrable metastasis, we endeavor to remove all the thyroid gland and follow the operation with intensive deep x-ray therapy over the areas to which metastasis usually takes place. The results are not any too flattering, except in those cases where the growth is still encapsulated.

#### RECURRENCE OF TOXIC GOITERS

The great problem in the management of the toxic goiters is the reduction or elimination of the small group of cases which recur. Various observers give from around 4 to about 10 per cent of recurrence. The thyroid remnant postoperatively is somewhat similar to the tonsillar stubs, and may at times, after the lapse of some several months or more, enlarge even to the size of the original thyroid and again produce all the old train of symptoms. Some of these cases are, no doubt, the result of too much conservatism as to the amount of thyroid tissue removed at operation. We recently had such a case to come under our observation. While this patient was undergoing a subtotal thyroidectomy, the anesthesiologist warned that she was not doing satisfactorily. The operation was immediately terminated, with one lobe of the thyroid scarcely touched. This woman improved beautifully for about seven months, when she again presented herself with the complaint that her old symptoms had returned. She was indeed correct, and the goiter removed at a second operation, which was successful, was as large as the original growth.

#### SUMMARY

There is definite evidence that the thyroid gland is closely associated with the master pituitary, the adrenals, the gonads, and the islands of Langerhans. The exact relation in all its phases is not known. The prognosis in the toxic diffuse is definitely worse in those cases where there is distinct evidence of a pluriglandular disturbance



and until the intricate and complex workings of the endocrine system are better understood, we can hope for little improvement in the results of this type of goiter.

## DISCUSSION

Dr. Paul D. Abramson (Shreveport): The prominent Louisiana surgeon who once remarked that he considered the best operative risk literally to be the individual who was snatched from the streets and operated upon was certainly not referring to the toxic thyroid case. During the past ten years, I have had the opportunity of working with Dr. Heard in conjunction with these thyroid cases. His mortality has been practically nil, and the most important single factor to which this splendid record can be attributed is the preoperative care. The importance of proper preoperative care is so well established universally that it might seem superfluous to mention it, but here in Louisiana, where thyroid disease is relatively uncommon, all too frequently we witness the omission of this all important step. Proper preoperative routine not only lowers the mortality, but it assures a smoother and more rapid convalescence.

It might be pertinent to mention briefly the preoperative routine which we utilize. The patient is hospitalized with absolute bed rest, seclusion and sedation. A high carbohydrate diet is given, which presumably improves liver reserve and hence decreases the operative risk. Lugol's solution is given only in the exophthalmic or diffuse toxic goiter. Stabilization is indicated by a pulse rate persistently less than 100. If there is evidence of cardiac decompensation, cautious digitalization is used. When the patient appears to be stabilized, plans are made to "steal" the thyroid. Either intravenous or rectal anesthesia is used as a basal. For several days prior to operation the patient's breakfast is omitted and he is given either intravenous saline or rectal instillations, as the case may be. On the day of operation the anesthetic is administered to the unsuspecting patient and he is put to sleep in his room. In the operating room, cyclopropane or ethylene is used to maintain anesthesia.

In patients who have not responded to this regime, it has been necessary to do a preliminary polar ligation; in others, a partial or staged thyroidectomy has been resorted to.

Probably no more difficult test of surgical judgment is encountered than in preparing the person with toxic thyroid for surgery and in deciding when to operate and how much surgery the patient will tolerate.

Dr. Stanley Peterman (Crowley): I do not know of any disease in the category of medicine that requires more individualization than hyperthyroidism. There is no unanimity of opinion regarding the etiology although in the last decade we have come to a more intelligent, comprehensive and

better understanding of the subject and have a better working basis in trying to unravel this most trying and at times baffling problem.

Regardless of the numerous etiologic factors expounded and promulgated, the endocrines should continue to receive much thought and consideration not only as a causative agent but also as a disturbing element in our recurrence or failure to obtain the proper end results.

We know, of course, that hyperthyroidism is a manifestation of a hormonal imbalance dependent upon an inherited or an acquired neuro-constitutional anomaly or defect and that this hormonal disturbance is not due to the thyroid primarily but that it is secondary to and dependent upon a primary anterior pituitary-gonadal defect.

There is no need of repeating what has been brought out. However, I do wish to state that when not to operate is as important as when to operate. Given a patient with hyperthyroidism rapidly losing weight even though in bed and under intelligent care, namely, a regime consisting of a high caloric diet, forced fluids, particularly an increase in carbohydrates and glucose, sedation when needed, with a pulse rate over 120 and a basal metabolic rate over 40 and complaining of myasthenia, such a person is not ready for operation. Briefly, such a picture indicates that catabolism overbalances anabolism and therefore the thyroid is yet too active for any operative intervention.

I would like to talk about the *bête noir* to the thyroid surgeon, namely, the recurrent type of hyperthyroidism. In hyperthyroidism following thyroidectomy there are two types, the persistent and the recurrent. In both types however, the symptoms are identical as in the original form. We do not see recurrence very often in the adenomatous type of goiter with hyperthyroidism as much as we see it in the parenchymatous hyperplastic type. In the latter we see it often enough to justify continued study in an effort to find a prevention. In the persistent type of hyperthyroidism there is only a temporary abatement or a mild remission of symptoms, whereas in the recurrent type there is an interval, a lapse of time, six months or more, in which the patient is symptom-free, followed by a return of the original symptoms of over-activity of the thyroid gland. Now this activity or hyperactivity may not be as severe as in the original form but on the other hand it may be so fulminating or virulent as to cause death.

In view of the fact that the etiologic factors of hyperthyroidism are so varied and numerous and based upon a predilection to the disease, I think it is logical to infer or assume that a more meticulous attention to a better operative technic would not be amiss.

In conclusion let me say that after all the crux of the situation is this, namely, that as long as a

person with toxic goiter is sent to a goiter surgeon in the late stage of the disease, that is, after the vital organs are irreparably damaged, the entire organism completely disorganized and the resistance impaired, that he will have the sorrow of registering bad results, incomplete and unsatisfactory and above all his mortality will continue to be high and his failures frequent.

Dr. Frederick F. Boyce (New Orleans): A discussion of thyroid disease is always timely in this state where, paradoxical though it sounds, the disease is a serious problem because it is seldom a problem. In other words, this is a non-endemic area, and for that reason none of us knows very much about this treacherous and dangerous condition.

Since 1933 we have been studying thyroid disease at Charity Hospital of Louisiana at New Orleans. In 1933 we reported 341 surgical cases with a mortality of 7.6 per cent, which is roughly 15 times higher than the mortality reports from the Lahey Clinic. For toxic thyroid disease the Charity Hospital mortality was over 10 per cent. In 1936 we published an additional 321 surgical cases, in which the mortality had fallen to 3.7 per cent and the mortality of toxic thyroid disease had fallen to 6.6 per cent. That was a notable improvement, though the mortality was still many times higher than the rate reported from the great goiter centers.

It was easy for us to show that the improvement in the mortality in the second series was due to certain specified factors, chief of which was the improvement in the preparation of patients for surgery. Toxic thyroid patients require definite and careful preparation for operation, and I might add that patients for whom surgery is not immediately contemplated, no matter what the reason, need equally careful treatment. It should be remembered that just as many patients die of thyroid crisis before operation as die of thyroid storm after operation. The reason in each instance is the same, inadequacy of treatment, based on failure to comprehend the intensity of the toxicity.

Toxic patients who are being prepared for operation require a diet high in caloric value. They require an abundance of carbohydrates and proteins, with a restricted fat intake, because of the liver damage present in so many cases. They require an abundance of fluids, particularly if the fluid balance has been disturbed by diarrhea or vomiting. They require sedatives, frequently in large doses. They require Lugol's solution, in adequate amounts and over the proper period of time. They require large amounts of oxygen because thyroid disease is a condition in which there is an increased consumption of oxygen. In this connection, I might add that it is an excellent plan before operation to train the patients to become used to the nasal catheter or the oxygen

tent. Such a plan avoids excitement after operation, when a new method, used for the first time, might do more harm than good because of the excitement it produces.

In addition to the preparation I have just outlined, recent work from Ravdin's clinic at the University of Pennsylvania has introduced an interesting slant on toxic thyroid patients who exhibit anorexia associated with serious loss of weight. Such patients have been found to be suffering from a vitamin B<sub>1</sub> deficiency, and Ravdin's controlled results have proved the importance of supplying this deficiency. He has put to very practical use the fact that in any condition in which the oxygen consumption is high the vitamin B<sub>1</sub> requirement is also high.

Iodine studies in thyroid disease have been rather disappointing in that the test is still too complicated and time-consuming for general use. On the other hand, such studies have proved of great value in identifying the patients in whom recurrence of the toxic thyroid state is likely after operation. The Lahey Clinic surgeons by means of iodine studies are now able to classify their patients and to determine, by the amount of iodine in the blood stream, whether a radical or a conservative thyroid operation should be done. When the blood iodine is low, recurrence is to be expected unless a radical thyroidectomy is done, whereas when the blood iodine is high, the usual operation can safely be performed.

I should not be willing to accept without qualification the statement that patients with toxic thyroid disease do not always respond to iodine. Every patient responds, though in some the response is better than others. The life cycle of the disease determines the degree of response. In some cases the toxicity covers a period of seven months, let us say, with an interval of comparative freedom covering another seven or eight months. In other cases the intervals may be longer or shorter. Naturally the response to iodine is likely to be different when the life cycle of the disease is different.

Iodine is often badly misused in the treatment of thyroid disease. One of the chief abuses is its administration over long periods of time. When it is so given, it may seem at intervals to be losing its effect, but again the underlying cause is the life cycle of the disease. If it is withdrawn, its previous effect will be demonstrated by a prompt increase in the patient's toxicity and a prompt rise in the basal metabolic rate. There is never any reason for the prolonged administration of iodine, which is not in itself curative. It controls toxicity temporarily, but it never cures toxic thyroid disease.

Dr. Joseph E. Heard (In conclusion): I feel that proper preparation of the toxic goiter patient is probably the most important point in the operative management of this type of case. Of course,

it takes quite a bit of experience to decide when these people will undergo operation with the least amount of trouble. We emphasize proper preoperative management as much, or more than any other point in the surgical management of this type of case. We are not as conservative now as we used to be in regard to the amount of tissue removed at operation. I believe it is almost impossible to remove too much tissue from these toxic thyroids. Several recurrences have come under my observation, doubtless due to the fact that we were too modest in the amount of tissue resected. So far as the mortality in these cases is concerned, we are satisfied, as the mortality is practically nil. Toward the small group of recurrences, we are now turning our attention, to see if we may further reduce this number. Probably a better understanding of the endocrine system will be the only thing that will enable us to make much progress in this direction.

Dr. Boyce misunderstood me when I said that the patient would not respond to iodine. I meant surgical response or, in other words, a response that would put the patient in a safe condition for surgical management. All toxic diffuse goiters will respond to iodine therapy, but some will not

improve to the place where they are the best surgical risks, and in this particular case which I mentioned and others that I have seen, iodine did not bring them to the place where I was satisfied; hence, we had to resort to the old method of ligation of the superior thyroid arteries.

The goiter question is a most interesting subject and I feel that people in this part of the country now take more interest in thyroid disease than when I was a medical student. I remember seeing only two or three thyroid cases as I went through medical school. There is a good deal of thyroid disease in Louisiana and a goodly percentage of these thyroids are malignant; it is estimated that 2 or 3 per cent of all thyroids seen are malignant, the malignancy coming almost always in the nodular type. The slides shown on the screen were from typical cases, illustrating different types of thyroid disease, and I am sorry that I did not have more time to go into detail on each case of this type.

I have always been keenly interested in the thyroid problem and hope by calling it to your attention that it may stimulate more interest in thyroid disease.

---

## CATARACT\*

GEORGE M. HAIK, M. D.†

NEW ORLEANS

There is probably no subject in the whole range of medicine in which the difference, both as to theory and practice, is so widely divergent as in the treatment of cataract.

When we remember that opacity of the lens of some form and in some degree is present in a large number of our patients who have reached the sixth, if not the fifth decade of life, it will be readily understood that a complete knowledge of the diagnosis, prognosis, and treatment is indispensable to the conscientious ophthalmologist.

### CLASSIFICATION

There are many classifications of cataract but the most practical one, while not

a new one, is the following according to etiology:

(1) The *congenital type* which is due to faulty development or intra-uterine inflammation of the eye.

(2) The *senile type*—the most common form. This term is a misnomer in that it does not occur in old age only but may be present in individuals between the ages of forty and fifty. It usually occurs, however, after fifty. The causes of this type are many, and frequently one individual may have multiple factors which contribute to its formation.

(3) The *hereditary type*: In the senile type heredity has an influence. Where there is a definite familial tendency toward longevity or old age, cataracts affect a fair percentage of elderly people.

(4) The *constitutional type*—that due to general constitutional diseases and toxic conditions of which diabetes is the most common example. Recently many cases of cataract due to dinitrophenol have been reported. Cataract also occurs in tetanus and other convulsive diseases as epilepsy and in naphthalin poisoning, ergotism and pellagra.

---

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 25, 1939.

†From the Department of Ophthalmology, Louisiana State University Medical Center, New Orleans.

(5) The *occupational type*: Occupation plays a part in cataract formation. It occurs frequently in glass blowers and others exposed to heat, as individuals who live in the tropics.

(6) The *traumatic type*: This type occurs by the production of an opening in the capsule, thus allowing the lens to absorb aqueous; the cause may be mere concussion, lightning stroke or severe shock.

(7) *Type due to ocular disease*: Ocular diseases may cause complicated or secondary cataract, the most common examples being infected corneal ulcers, iridocyclitis, choroiditis, myopia of high degree, glaucoma, and detachment of the retina.

(8) *Errors of refraction* seem to predispose to cataract, since most cataract patients are known to have hyperopia and hyperopic astigmatism.

(9) The *endocrine type*: Disturbances of the ductless glands. This type may occur in Mongolian idiocy, cretinism, myotonia dystrophica, tetany and myxedema.

In order to determine the etiology of a cataractous lesion and the type of treatment most advisable, a complete survey of the patient is necessary, all factors in each individual case being given consideration. The ophthalmologist must be extremely thorough in his examination of the eye; he must be certain that there is no cause for the diminution of vision other than cataract. Any other local pathology such as uveitis, secondary glaucoma, or detachment of the retina must be looked for. When examination of the eye has been completed the patient should be referred to a competent internist for physical examination which should include a blood Wassermann, blood chemistry, urinalysis, dental survey, ear, nose and throat survey; in the male, an investigation of the genitourinary tract, and in the female, a gynecologic examination. All foci of infection must be eliminated. This is important not only in an attempt to prevent any progression of the cataract but is necessary to the proper institution of treatment, whether it be medical or surgical. A search should be made for constitutional diseases

causing the cataract, diabetes being the most common etiologic factor in this group. In investigating a patient for diabetes, dependence should not be placed on an examination of urine alone, but upon a determination of blood sugar. Hypertension and latent syphilis are constitutional diseases which frequently give rise to postoperative complications. Glandular dysfunction, vitamin deficiency, faulty elimination and auto-intoxication must be considered. In order to achieve the most successful results in therapy, a systematic effort must be made to improve the patient's general health and metabolism. The earlier such treatment is instituted the better the chances of cure.

#### TREATMENT

There are two general types of treatment: (1) Medical and (2) surgical.

*Medical Treatment*: Before attempting any form of medical treatment, it is first necessary to consider the etiology of the lesion. There are many contributing factors in the causation of cataract, but in a general way anything that interferes with the nutrition of the lens may be a cause of cataract. Arterial hypertension, arteriosclerosis, and diabetes mellitus are frequent causes. It has been shown by the use of the slit lamp in the study of lens opacities that the lens is insufficiently nourished, and for this reason the part that abnormalities in nutrition play in lens opacities is receiving increasing attention. Disturbances of the ductless glands, poor elimination and auto-intoxication must be considered. There are some, Vogt and others, who believe that cataract is a normal biologic phenomenon comparable to graying of the hair and as little amenable to treatment.

Medical treatment is divided into two general groups: (1) Local therapy, and (2) systemic therapy.

Local therapy has included the use of dionin, potassium iodide and mercury cyanide by instillation and subconjunctival injection. The evidence substantiating these methods is unconvincing. This type of therapy is based upon the local hyper-

emia and chemosis produced; these are thought to have a beneficial effect on nutrition of the lens. Some do believe, however, that incipient cataracts have remained stationary during such treatment. *Succus cinearia maritima* compound is believed by some to have absorptive powers and to be of aid in the smaller opacities of the lens but of no value in the more advanced.

It is the opinion of Gifford and others, that the best treatment, non-surgical, in cases of incipient cataract is careful and repeated refraction, because changes in the axis and degree are constantly occurring during the course of cataract. Most cases of cataract are known to have had large errors of hyperopia and hyperopic astigmatism.

Systemic treatment directed at general constitutional disorders consists chiefly in the elimination of known foci of disease, reduction of high blood pressure, reduction of blood sugar, correction of faulty elimination, and regulation of diet. The possibility that dietary deficiencies may have some relation to senile cataract has created a great deal of interest in recent years. Yudkin has shown that cataracts develop when there is a deficiency of vitamin G in the diet of young rats. In one instance, by restoring vitamin G, at the end of three weeks all signs of cataracts disappeared in the experimental animal. C. S. O'Brien has stated that while he and his associates, Ray and Langston, were unable to note any clearing of the lens by feeding vitamin G, the progress of the process could be stopped at any point by such means.

Whether deficiency of vitamin C has any significance in the etiology of cataract has been a matter of dispute. It has been stated that the crystalline lens contains relatively large amounts of cevitamic acid in the normal individual, and that with age the cevitamic acid content of the lens decreases. Hence, some have suggested that senile cataract is the result of undue deficiency of this vitamin in the lens. It must be stated, however, that there is no

conclusive evidence that vitamin C materially influences the course of senile cataract. Vitamin C deficiency is one of the possible factors in wound disruption where there is no evidence of infection of the wound. The whole subject of the relationship of vitamin C to cataract formation is in its infancy and much clinical and experimental evidence must be accumulated before any definite therapeutic claims seem justifiable.

Shelling states that, until two decades ago, the majority of the cases of cataract reported were associated with nutritional and occupational tetany in young adults, but with the introduction of vitamin D therapy and the eradication and prevention of tetany of nutritional origin, the incidence of mature cataract waned considerably.

Glandular therapy has been used in recent years. This is largely based on numerous observations of lamellar cataract in children with tetany and rickets. Children with tetany and associated cataract have been shown to have a parathyroid deficiency and have been treated with parathormone in addition to calcium. Romanowa, in determining the calcium phosphorous ratio in 23 cataract patients below 43 years of age, found that one-third of them had a hypo-functioning parathyroid. Kirby in his work has shown that most cases of senile cataract have a normal blood calcium, and that parathormone has no effect on the progress of this condition. Siegrist, reasoning that cataract as a senile phenomenon must be affected by the change in glandular balance which occurs at the time of involution, believes it may be affected along with other senile phenomena, by replacing the senile glandular deficit. He attempts to do this by the oral administration of a preparation containing thyroid, parathyroid and genital glands. The preparation is known as euphakin. It is the opinion of most individuals that it is of no value because of the impotence of the genital hormones orally. Shelling has seen two patients with chronic tetany following total parathyroidectomy, in whom the de-

velopment of opacities in the lenses has persisted in spite of continued parathyroid therapy for a period of about two years. Since little is known of the mechanism of cataract formation in general, the empirical use of the hormone in other forms of cataract is not to be advocated.

Thyroid and its active principle, thyroxin, has been used as an injection and as local treatment. It has been of value only in cases of cataract with myxedema.

Another type of treatment which must be mentioned is the use of lens antigen. This was first proposed by Roemer on the theory that certain specific toxins for lens substance are formed in the body and that immunization of the body to lens protein would neutralize such toxins. Recently, Davis has employed this therapy with an entirely different theory, namely that by immunizing the body to lens protein, specific lysins will be produced which will absorb lens opacities.

*Surgical Treatment:* The cataract operation is almost universally considered the most delicate in all surgery; the ultimate results vary with the operator, with the method of extraction and the condition of the patient's eye. With modern precautions and technic, few eyes are lost in the hands of a competent eye surgeon.

Generally, the chances of recovery are excellent. As a rule, most occupations can be resumed, at least in a moderate measure, after recovery from operation.

As a rule, age is not a factor in cataract operation. There is little more risk in operating upon a patient of eighty than upon one in the sixth decade, this risk depending largely upon the heart and vascular system.

In the surgical treatment of cataract two major problems confront the surgeon: When to operate and what type of procedure to employ. These are best decided by consideration of every factor in each case.

Generally, the most favorable time for operation for *senile cataract* is that period when the patient can no longer get about comfortably and can no longer carry on his usual occupation. With improved meth-

ods of intracapsular and extracapsular extraction, patients may now be operated upon before a marked degree of incapacitation has set in and with a minimal loss of time from work.

The patient with *monocular cataract* should be operated upon as soon as cataract maturity is reached because binocular vision is much better than monocular vision and is safer; second, because the longer the operation is put off the greater the age of the patient and therefore the greater the possibility of complications; third, because the sooner the operation the less are the dangers of secondary glaucoma and iritis from cataract hypermaturity.

The question of *operating on the second eye* often arises when a good result has been obtained on one eye. There should be no question in the mind of the ophthalmologist. Unless there is some strong contraindication, the extraction of the second cataract should follow that of the first.

Early surgery in *congenital cataract* depends on whether the lesion completely obscures the vision or whether the opacity is limited to the pole or nucleus. When complete visual obscurity is present, it is best to operate as early as possible, even in the third month, because, if delay ensues, central fixation will not develop and an ocular nystagmus will result. If vision is not entirely obscured the operation may be postponed for a considerable period of time, even into childhood.

When *traumatic cataract* is the result of a penetrating injury and the lens is extensively injured, it seems best to remove as much of the lens substance as possible immediately upon seeing the patient, provided not more than 24 hours have elapsed. After that time, and when a reaction has begun in the eye, it is better to wait until the eye has quieted somewhat before attempting to remove the lens substance.

*Dinitrophenol cataract* should be observed as early as it is possible to see the patient, watching the eye closely for signs of increased intra-ocular tension and acting to remove the lens when this occurs because an acute glaucoma may develop.

A cataract with healed cyclitic changes, many posterior synechiae, and a thickened capsule is a difficult case to handle. Just when to operate is a difficult question to answer. If vision is so poor as not to be useful, one can operate after the eye has been quiet for six or eight months. When there is still useful vision left, there arises the question of operating with the possibility of improving the vision, on the one hand, or of stirring up a devastating inflammation on the other. Here each case will have to be settled on its own merit.

#### ANESTHESIA

In the past few years the introduction of akinesia and retrobulbar injection has greatly facilitated the operation for cataract and has minimized the need for skilled assistants, though it has not reduced vitreous loss. The retrobulbar injection has two disadvantages: One, a retrobulbar hemorrhage with its accompanying proptosis and occasional retrobulbar infection; another, a paralysis of the inferior rectus muscle. The advantages of the ciliary block are the exceptionally complete anesthesia and the more or less marked temporary hypotony.

#### TYPE OF PROCEDURE TO BE EMPLOYED

Much has been written as to the operation to be selected for the different types of cataract, but there is no absolute unanimity of opinion.

The question of iridectomy at the time of the cataract operation has long been debated in ophthalmic circles. Iridectomy at the time of cataract removal facilitates the intracapsular operation with the capsule forceps if that operation is determined upon. Iridectomy at the time of extracapsular extraction makes the removal of the cortex easier. It affords more room for sweeping the cortex out of the anterior chamber, and, properly performed, is always a safeguard to the future transparency of the lens. In both procedures it serves to reduce the incidence of iris prolapse. Knapp practices iridectomy as a routine unless the operation is a cosmetic one in young individuals. There are two

disadvantages to this procedure, which, in my opinion, are of little consequence: The cosmetic result, i. e., the irregular pupil, and the inability of the iris to regulate the amount of light entering the eye.

There are many advantages in the preliminary iridectomy. It aids the visual acuity of patients with immature cataract; at the time of subsequent extraction there is no hemorrhage into the anterior chamber from the cut iris and the most painful part of the operation has been eliminated; the surgeon becomes somewhat more acquainted with the reaction of the patient to the surgical procedure and the patient becomes oriented to the operating room; it is of advantage in cases of chronic simple glaucoma, associated megalocornea and hypermature cataracts; it determines the presence of a previous uveitis; it will usually prevent an iritis which occurs sometimes in the combined extraction; it aids in the determination of the condition of the vitreous, and therefore aids in the prognosis. The disadvantages are that it involves two penetrations of the ocular coats with the accompanying danger of exogenous infection and the increased expense of two periods of hospitalization, and in some individuals produces a sense of apprehension concerning subsequent operation.

Surgical procedures are divided into two general types: (1) The extracapsular extraction in which the lens and capsule are removed separately, and (2) the intracapsular extraction in which the lens and capsule are removed together. The Smith, Barraquer and Knapp modifications of this procedure are widely used.

The age of the patient, the prominence of the eyeball, tractability, and other pathologic manifestations may enable one to form a tentative idea as to the type of procedure to be employed.

Though there are many advocates of the intracapsular operation, the extracapsular procedure seems to be generally considered the operation of choice in juvenile, congenital, traumatic and secondary cataracts. To these may be added cases of cataract occurring in the bulging type of eye, cases of

cataract complicated by glaucoma, and glaucomatous cataract. Wright advocates this type of operation in patients under 50 years of age because of the rather strong zonular fibers; it is best also in the presence of cough, asthma, high blood pressure, excitability, high myopia, a fluid vitreous and in one-eyed individuals. Knapp, Elschning, Kubik, Wright and others feel that the extracapsular procedure is indicated in the Morgagnian cataract and other hypermature cataracts, and in cases of senile cataract that are in the intumescent stage because of the difficulty in grasping the tense capsule.

The extracapsular procedure, as I employ it, consists of creating and leaving intact a large conjunctival bridge as advocated by Wright, Lamb, Elliott, McReynolds and others. The disadvantage of a conjunctival bridge is that it creates more difficulty in performing the intracapsular operation. McReynolds either divides the bridge, using sutures which he retracts to the side, or leaves the bridge intact and has the assistant grasp the lip of the bridge and pull it down and forward over the cornea. The advantages of leaving the bridge are that it prevents eversion or inversion of the corneal lip; it facilitates rapid removal of the speculum when this becomes necessary; and it is a safeguard in the prevention of the corneal lip being caught by the upper lid at the time of the operation. The presence of a bridge postoperatively stimulates more rapid healing and closure of the wound.

The advantages of the intracapsular procedure are: An earlier operation can be performed; there is freedom from iritis; and a secondary operation and its complications are avoided. The great disadvantage of this procedure is the high incidence of vitreous loss and the complications which accompany it. These complications are prolonged healing with wrinkling of the cornea; detachment of the retina; delayed uveitis; secondary glaucoma; and panophthalmitis.

All intracapsular methods now in vogue start with a dislocation of the lens. After

the lens is dislocated, extraction is performed. According to the Smith method, the dislocation is accomplished by external pressure. Such pressure, in my opinion, is too great to be compatible with safety for the eye. The Knapp method is a dislocation brought about by the capsule forceps. This is the safest method but only succeeds in dislocating the lens in a proportion of cases as the capsule tears. Another method, the Barraquer suction method, consists of dislocating the lens with the vacuum cup.

The skill of the operator, an accurate knowledge of the parts involved, the ability of the surgeon to handle any unforeseen situation which may be encountered, and the avoidance of doubtful complicated procedures contribute to the most successful results. Unfortunately, in an occasional cataract extraction, the structures of the eye may be involved by pathologic conditions and the most expert operator, through the most advanced methods, is confronted by conditions requiring very complicated procedures.

#### COMPLICATIONS IN CATARACT EXTRACTION

There are many complications occurring in connection with cataract extractions. These are largely due to the pathologic condition of the eye at the time of operation, to the inexperience and poor judgment of the operator, and to the conduct of the patient during operation and convalescence. Only those occurring most frequently will be discussed.

*Postoperative hemorrhage* into the anterior chamber is frequent, especially in diabetic persons. It arises most often from the vessels of the limbus and less frequently from the iris and is most common in cases of vascular disturbances of the uvea and conjunctiva. While hemorrhage into the anterior chamber occurs less frequently and usually is not serious, this cannot be said of choroidal or expulsive hemorrhage. This latter type of hemorrhage is fortunately rare but practically always destroys the eye. This type of bleeding may occur at the conclusion of the incision or may be delayed until the tenth postoperative day.



It seems to depend upon vascular degeneration of the choroid.

*Vitreous loss* is a complication that is unavoidable in some cases. However, Nugent believes that a well-chosen and executed technic, a well-trained assistant and a confident patient will do much to lessen its frequency. Liquid vitreous, too much pressure, and an attempt at expression in a non-cooperative patient are conducive to vitreous loss.

*Burst capsule associated with vitreous loss* is one of the most serious complications of the intracapsular operation. By the bursting of the capsule the operation does not resolve itself into the simple extraction with capsulotomy, for the posterior lens capsule has been dislocated and unless the capsule and retained cortex can be removed entirely with the capsulotomy forceps, a very dense cataract will be the result. Even if the capsule has been removed the difficulty of milking out flocculent cortex without further loss of vitreous will be considerable.

*Glaucoma* following the extraction of the cataract may result from the fact that the iris or lens capsule has prolapsed and healed into the wound; or it may result from the ingrowth of epithelium into the chamber which by epithelization of the infiltration angle reduces filtration, with a resulting increase in intra-ocular pressure. Also it may result from the injudicious use of mydriatics and myotics postoperatively. Needling, which is considered a simple procedure, involves quite as much hazard as the original extraction because this causes excitation within the closed eyeball without the safety of drainage. I know of no condition in cataract work which is more dangerous to the eye and more difficult to treat successfully than postoperative glaucoma.

*Iritis* occurs more frequently after the extracapsular operation than following the intracapsular method. Elschnig gives the percentage following the extracapsular operation at 5.8 and following the intracapsular operation as 0.87. Lens cortex, or capsule remnants left in the anterior chamber, trauma, circulatory disturbances, iris

adhesions in the wound, increased intra-ocular tension, and hemorrhage into the anterior chamber are some of the possible causes.

*Rupture of the wound* is a grave complication as it may result in adhesion, incarceration, prolapse of the iris, prolapse of the vitreous, collapsed anterior chamber, or hemorrhage into the anterior chamber with subsequent iritis. It is often caused by trauma, or sometimes by restless patients, turning unaided in bed during the first few hours following operation. Vitamin C deficiency may be a factor.

*Prolapse of the iris* is a serious complication. It requires further operative measures for its treatment. The smallest prolapse is a potential source of danger and a constant source of pain and discomfort.

*Sympathetic ophthalmia* is one of the most disappointing and disastrous complications that can occur following cataract extraction. Theobald found it to occur twice in 7,444 cases, while Knapp of New York has reported an average of one case in every 750 extractions.

*Retinal detachment*: The prevention of retinal detachment may be accomplished by the elimination of excessive vitreous loss and the prevention of chronic uveitis with softening of the globe. Little can be done to bring about a reattachment of the retina. The operative results are disappointing.

*Inflammations (purulent)*: Infections of the eye following operation for cataract may be exogenous or endogenous, the former being the most frequent. The treatment and results of purulent infections of the eye are disappointing. Most eyes are lost.

*Asteroid hyalitis* is a definite complication. However, it is rare and compatible with reasonable vision. Wright has noticed asteroid hyalitis of the Benson type associated with a considerable reaction after an intracapsular extraction in which the anterior condensing layer of the vitreous became thickened and the pupil adherent to it.

#### SUMMARY

1. Etiologic factors predisposing to cataract are considered.

2. The value of a general survey of the case is emphasized.

3. Those types of cataracts presenting surgical problems are discussed.

4. Treatment is divided into medical or surgical, the etiologic factor determining this.

5. Complications occurring at the time of operation and during convalescence are discussed.

#### BIBLIOGRAPHY

1. Vail, Derrick: Epithelial downgrowth into the anterior chamber following cataract; arrest by radium treatment, *Arch. Ophth.*, 15:270, 1936.
2. Mann, W. A., Jr.: Cataract due to dinitrophenol; case report, *Arch. Ophth.*, 15:116, 1936.
3. Bellows, John: Biochemistry of lens, *Arch. Ophth.*, 15:78, 1936.
4. Shelling, David H.: *The Parathyroids in Health and Disease*, C. V. Mosby, St. Louis, 1935.
5. Lucke, Richard (Abbott Laboratories, Chicago): Personal Communication.
6. Vinsonhaler, F., and Cosgrove, K. W.: Hereditary cataract of the senile and pre-senile types, *Arch. Ophth.*, 15:222, 1936.
7. Krause, A. C.: Biochemistry of eye, *Arch. Ophth.*, 15:222, 1936.
8. Davis, A. Edward: *Medical Treatment of Cataract*, F. A. Davis Co., Philadelphia, 1937.
9. Fisher, W. A.: *Senile Cataract*, Chicago Eye, Ear, Nose and Throat College, Chicago, 1923.
10. Gifford, S. R.: *Ocular Therapeutics*, Lea and Febiger, Philadelphia, 1937.
11. Tassman, I. S.: Cataractous lens; experimental and clinical studies, *Arch. Ophth.*, 19:114, 1938.
12. Day, P. L., Darby, W. J., and Cosgrove, K. W.: Arrest of nutritional cataract by use of riboflavin, *Nutrition*, 15:83, 1938.
13. McReynolds, J. O.: Management of iris in operation, *Texas State J. Med.*, 33:817, 1938.
14. Yudkin, A. M.: Diet and vitamins in relation to cataract, *Am. J. Ophth.*, 21:871, 1938.
15. Gailey, W. W.: Problems encountered in cataract extraction, *Am. J. Ophth.*, 21:855, 1938.
16. Bourne, Margherita, and Pyke, M. A.: The occurrence of cataract in rats fed on diets deficient in Vitamin B<sub>2</sub>, *Biochem. J.*, 29:1865, 1935.
17. Wolback, S. B.: The pathologic changes resulting from vitamin deficiency, *J. A. M. A.*, 108:7, 1937.
18. Booher, Lela E.: Chemical aspects of riboflavin, *J. A. M. A.*, 110:1105, 1938.
19. Hogan, A. G.: Riboflavin, physiology and pathology, *J. A. M. A.*, 110:1188, 1938.
20. Abt, A. F., and Farmer, C. J.: Vitamin C; pharmacology and therapeutics, *J. A. M. A.*, 111:1555, 1938.
21. Appleman, L. F.: Intracapsular cataract extraction, *Arch. Ophth.*, 19:586, 1938.
22. Bedell, A. J.: The diagnosis and classification of cataract in the adult, *Tr. Am. Acad. Ophth. & Otolaryng.*, 33:103, 1928.
23. Gradle, H. S.: The age of patients operated on for senile cataract, *J. A. M. A.*, 95:774, 1930.
24. Howard, C. N.: The present trend in cataract removal, *Tr. Indiana Acad. Ophth.*, 52:8, 1936.
25. Key, B. W.: What progress has been made in perfecting the cataract operation, *N. Y. State J. Med.*, 34:803, 1934.
26. Potter, W. W.: Cataract operation, *J. Tenn. Med. Assn.*, 14:296, 1921-1922.
27. Clark, C. P.: Some common surgical complications in senile cataract, *Tr. Indiana Acad. Ophth.*, 40:51, 1936.
28. Cruickshank, M. M.: A note on the complications following 1,322 consecutive cases of cataract extraction, *Indiana Med. Gazette*, 58:461, 1923.
29. Rutherford, C. W.: Complications in cataract extraction; a consideration of focal infections and diabetes, *Am. J. Ophth.*, 12:569, 1929.
30. Bruner, A. B.: *Cataract: Facts and fallacies*, Hygeia, 14:592, 1936.
31. Clark, C. P.: Common surgical complications in senile cataract, *J. Indiana Med. Assn.*, 29:422, 1936.
32. Ballantyne, A. J.: Cataract and the cataract patient, *Clin. J.*, 66:237, 1937.
33. Wright, R. E.: Difficulties at time of operation, *Am. J. Ophth.*, 20:119, 1937 and 20:376, 1937.
34. Buxton, R.: Cataract. Eye Hospital at Shikapur, India, *Brit. J. Ophth.*, 21:605, 1937.
35. Gailey, W. W.: Report of 200 operations, *Ill. Med. J.*, 72:528, 1937.
36. Lombardo, M.: Safety measures in senile cataract extraction, *Medical Record*, 146:251, 1937.
37. Clapp, C. A.: Surgical intervention from pre- and postoperative standpoints, *Arch. Ophth.*, 18:827, 1937.
38. Clark, W. B., and Fish, J. W.: Van Lint conjunctival flap, *N. O. Med. & Surg. J.*, 90:87, 1937.
39. Gifford, S. R.: Recent views, *J. Iowa Med. Soc.*, 27:279, 1937.
40. Whalman, H. F.: Critical decisions in extraction, *Calif. & West. Med.*, 48:255, 1938.
41. Krishnaswami, C. V.: Intracapsular expression, *Brit. J. Ophth.*, 19:548, 1938.
42. Anderson, R. G.: Intracapsular extraction; 58 consecutive cataract operations, *South. M. J.*, 31:431, 1938.
43. Davis, F. A.: Personal experiences with intracapsular extractions, *Arch. Ophth.*, 19:867, 1938.
44. Moncreiff, W. F.: Technical questions, *Am. J. Ophth.*, 20:1245, 1937.
45. Sanderson, D. D.: Classification of cataract, *Neb. M. J.*, 21:216, 1936.
46. Weeks, W. W.: Complicated after cataract; surgical treatment, *Tr. Am. Ophth. Soc.*, 33:559, 1935.
47. McReynolds, J. O.: Management of complications, *Surg. Gynec. Obst.*, 62:517, 1936.
48. Cooper, F. M.: Proper time for removal, *J. Okla. M. A.*, 28:57, 1935.
49. Foster, J., and Benson, J.: Percentage incidence and surgical significance of different forms, *Tr. Ophth. Soc. U. Kingdom*, 54:127, 1934.
50. Wright, R. E.: Lectures on cataract; anterior segment and other complications in the postoperative period, *Am. J. Ophth.*, 29:240, 1937, and 20:119, 1937.
51. Nugent, O. B.: Complications in cataract extraction; cause, prevention and management, *Am. J. Ophth.*, 17:135, 1934.
52. Daily, Ray K.: When should a cataract be removed, *Med. Women's J.*, 42:33, 1935.
53. Wright, J. W.: Intracapsular operation; survey of 50 years' experience, *Eye, Ear, Nose & Throat Month.*, 11:284, 1932.
54. Tweedy, Wilbut R., Bel, Williams P. and Vicens-Rios, Christobal: Further chemical studies on a parathyroid hormone, *J. Biol. Chem.*, 108:105, 1935.
55. Day, Paul L., Darby, William J. and Langston, William C.: The identity of flavin with the cataract preventive factor, *J. Nutrition*, 13:389, 1937.
56. Yudkin, A. M.: Vitamins; clinical evidence of necessity of vitamins for function of ocular tissue, *Arch. Ophth.*, 14:112, 1935.
57. Brown, E. V. L.: *The Lens and Cataract. The 1938 Year Book of the Eye, Ear, Nose, and Throat, The Year Book Publishers, Chicago, 1938.*
58. May, C. H.: *Diseases of the Lens. Chapter XVII. Manual of Diseases of the Eye, William Wood and Co., New York, 1930.*
59. Dailey, Ray K.: Intracapsular cataract extraction, *Texas State J. Med.*, 27:426, 1931.
60. Laval, J.: Vitamin therapy in ophthalmic practice, *Am. J. Ophth.*, 22:33, 1939.

61. Dimitry, T. J.: Force used in cataract extraction, *Am. J. Ophth.*, 22:416, 1939.

62. Dimitry, T. J.: Some newer instruments for intracapsular cataract extraction, *Eye, Ear, Nose & Throat Month.*, 17:130, 1938.

63. Blaess, M. J.: Dinitrophenol cataracts; removal by Barraquer intracapsular operation, *Eye, Ear, Nose & Throat Month.*, 17:340, 1938.

64. Peter, L. C.: Concerning Senile Cataract, The National Society for the Prevention of Blindness, Inc. Publication 122.

#### DISCUSSION

Dr. T. J. Dimitry (New Orleans): Dr. Haik would separate cataracts according to cause and claim senile cataracts misbranded. He would have us believe that the lens cannot wear out or a cataract follow because of abuse of the eyes. I heartily agree with him.

Metabolic disturbance in or about the lens is basic in cause of cataract. The teachings of Vogt that the cataract is a normal biologic phenomenon, comparable to graying of the hairs, is false. The causative agent for the cataract is not local but constitutional.

The essayist pyramids his presentation as to the necessity of a survey of the patient in study of lens changes, and thoroughly excludes one cause after another as responsible. He seeks to know the reason for such occurrences. Opacity of the lens springing into existence without cause is impossible. He would not leave a thing unturned when searching for the cause. Each specialist would be called upon to remove factors capable of producing changes in the lens. He is an idealist in this respect; however, I agree with his ideals, "searching for the cause." He is willing to try to prevent the oncoming, and recognizes accomplishments when cause is removed early in the lens pathology. Some remedies, he feels, are helpful in preventing further progress of the opacities but is uncertain as to results. He does not seem to agree with Gifford and others that refraction defects, properly cared for, have any beneficial effect in preventing or curing cataract; pathology is his forte, and though he admits that errors of refraction exist with the oncoming cataract, such is not the cause, in his opinion, of the lens changes, but the effect of the lens change due to the oncoming cataract.

Though I approve of many things he has said I am disappointed when he neglects to speak fully concerning vitreous as regards the cataracts. I wish he would dilate upon the changes he has met with in the vitreous, in the oncoming cataract and such changes as being responsible for loss of vitreous at the time of cataract extraction.

I had hoped for a more definite stand in regard to a preferred method of extraction for the cataractous lens. It is unfortunate that he has straddled and refused to tell us his preference between the intra- and extracapsular procedures. He has played safe but we would like to have his views

even though he changes his opinion in another fortnight.

Dr. Haik (In conclusion): I do think intracapsular operation is definitely indicated in certain cases. I believe extracapsular is the most conservative form of treatment.

---

### THE MODE OF ACTION OF X-RAYS IN OTITIS MEDIA\*

L. L. TITCHE, M. D.†

MONROE, LA.

In the nearly forty years since x-rays have been used in the treatment of inflammatory conditions of the middle ear, more and more men have come to employ this form of therapy. Because of its so frequent use with such gratifying results, it would do well for us to consider in what way these effects are produced.

The first use of roentgen rays in the treatment of inflammatory processes goes back to about 1902, when it was observed that certain types of infections seemed to improve following the exposure of the affected part to these rays for the purpose of diagnosis. Heineke,<sup>5</sup> in 1903, was one of the first to make a breach in the wall of obscurity which, until that time, had surrounded the action of irradiation on living cells. His work on experimental animals did much to pave the way for future investigation. Between 1904 and 1910 the knowledge of the biologic action of the rays was increased substantially and even though today that knowledge is far from complete, it is at least sufficient to give us some idea of the principal changes which follow irradiation and to enable us to understand many of the effects observed clinically. It was first noticed about 1902 that many patients with acute mastoiditis showed clinical improvement within a very few hours following a roentgenogram.

Granger<sup>10</sup> and Schillinger<sup>15</sup> are pioneers in this field. The former did not report

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

†From the Vaughan-Wright-Bendel Clinic, Monroe, La.

cases which showed any sign of destruction of the mastoid, but only those with occlusion of the mastoid antrum with or without infection of the mastoid structure. The technic consisted in making radiographs of both mastoids two or three times a week until clinically and radiographically the condition cleared up or the signs of bone destruction became evident. Schilling<sup>1</sup> found that in 85 per cent of his cases of acute mastoiditis there was a change in the clinical picture within 24 hours after exposure. He advocated that if the original symptoms recur a second, third, or fourth exposure may be necessary and he deemed it advisable to treat cases of acute otitis media with x-radiation at the end of the first week of discharge and then at intervals of three days for three exposures as a prophylactic measure against mastoid disease.

Other early workers include Goldman,<sup>9</sup> Daniel,<sup>4</sup> and Yocum,<sup>19</sup> who used this form of therapy in acute otitis media with excellent results. A very comprehensive study of 50 cases of mastoiditis and acute otitis media was made by Lucinian,<sup>12</sup> in nine cases of which mastoiditis had already begun but operation was avoided in all except two. Roberts<sup>14</sup> reports that in eight of 11 cases of non-operative mastoiditis there was a very definite relation between the x-ray picture and the clinical improvement, and Levin<sup>11</sup> states that if used early, roentgen therapy is especially satisfactory in early mastoiditis and when the proper technic and correct doses have been used, there are no deleterious effects.

#### ANATOMY

Before discussing the effect of these rays upon the middle ear, it would be well to review briefly the embryology and anatomy of this part. The middle ear or tympanum is formed from the cavity of the first branchial arch and from the second branchial arch. The malleus and incus arise from the first and the stapes from the second branchial arches. The cavity is filled with a mass of embryonic gelatinous tissue in which pouches or diverticula form, so that towards term the walls of the middle

ear are wholly freed of this tissue and become fully lined with mucous membrane.

The middle ear is a roughly six-sided, wedge-shaped depression in the petrous portion of the temporal bone and bounded on all sides by bone except for the tympanic membrane on the external wall, the aditus ad antrum on the posterior wall, and the opening of the eustachian tube in the lower third of the anterior wall. So, it is not truly a closed cavity and when there are perforations of the drum membrane, there is direct communication with the outside. Drainage can not take place in the adult except in perforations of the drum, because of the fact that the eustachian tube opens two or three millimeters above the floor of the tympanic cavity. The membrane lining the tympanum is directly continuous through the eustachian tube with that of the nasopharynx. Over the medial wall the epithelium is cuboidal, while on the anterior half of the floor it consists of ciliated cylindrical cells, and in the vault the squamous variety is present. The mucosa of the atrium is very closely applied to the bony walls, but in the vault it is thrown into folds and reduplications.

#### INFLUENCE OF IRRADIATION

In all cases of an intact drum, infection reaches the middle ear through the eustachian tube either by continuity of the mucous membrane or by infected material carried from the nasopharynx by a sudden jet of air rushing through the tube. In cases where the drum is perforated, infection enters either through the perforation or as just stated. Since irradiation acts in the same way and on so many forms of acute inflammations, it would seem logical to conclude that the lesions themselves must have some common factor. This factor would seem to be the radiosensitiveness of certain cells which are more or less a prominent feature of the majority of acute inflammations. It is a well known fact that the younger and more active the cell, the more susceptible it is to the influence of radiation. The body's method of fighting an infection is to rush to the site a large number of leukocytes, most of which

are young cells, the degree of leukocytic infiltration depending on the virulence of the infecting micro-organisms. The leukocytes are the most radiosensitive of all cells, with the exception of the mucus secreting epithelial cells of the salivary glands, stomach, intestine, and bronchi. Of all the leukocytes the lymphocytes are the most radiosensitive. Some of these cells have the power to ingest and digest invading organisms. These cells also produce antibodies which are entirely endogenous and therefore only those organisms ingested by the cells are affected by them. No free antibodies are present in the tissues until the leukocytes begin to die and break up, except for small quantities that may be present in the blood and lymph, the result of some previous infection.

The first biologic effect of radiation is irritation. This irritation may lead to a temporary transient phase of increased cellular activity which is followed almost immediately by depressed function and cellular destruction. It is this phase of increased activity which accounts for the temporary increase in the symptoms which is sometimes encountered. After large numbers of leukocytes have been destroyed, the concentration of the antibodies becomes sufficient to retard the growth, reproduction, and excretion of the invading organisms so that they may be overcome. The lysins contained in the destroyed leukocytes promote rapid liquefaction and drainage of the tissue too badly injured for repair. Cushway and Maier<sup>3</sup> believe that it is this destruction of the leukocytes and liberation of the antibodies which we seek to cause by irradiation. In this viewpoint, they are joined by Tyler,<sup>16</sup> who states that the effect of the x-ray on infections is now definitely established as due to the antibodies released by the breakdown of the radiosensitive leukocytes. After the leukocytes are destroyed and the ferments and antibodies are liberated, it is also probably, as the experimental evidence indicates, that the next step is an increase in phagocytosis by reticular cells which become macrophages. No doubt other intimate second-

ary, or indirect effects related to cell metabolism are produced, but the precise character and significance of these effects are not clear. Although absolute proof is lacking, it seems probable that the activation in ferment action and autolysis invoked by Musser, Edsall and Pemberton,<sup>5</sup> the destruction of infiltrating leukocytes mentioned by A. J. and W. A. Quimby,<sup>5</sup> and the increase in phagocytosis referred to by Krost<sup>5</sup> represent only different phases of the same effect. The destruction of large numbers of lymphocytes soon after moderate irradiation and the phagocytosis of the nuclear debris of the destroyed cells undoubtedly explain the increase in phagocytosis and autolysis and the failure of irradiation after the onset of organization.

Wintz<sup>18</sup> believes that the roentgen rays probably exert a specific action by improving the blood supply without injury to the tissues. He states that the permeability of the cell walls is increased, thus facilitating the compensation of the blood-hydrogen concentration and that of the inflamed focus. Acidosis is increased temporarily, partly by the process of denaturing of albumin. This denaturing is brought about either directly by the effect of the rays, or in part indirectly by the increased decomposition of the cells, which process sets free a considerable amount of albumin.

Milani<sup>13</sup> points out that the local effects of the x-rays are due to four causes: the effect on the local circulation of the blood, the necrobiotic effect on the cells of the infiltrate, the effect on the phagocytes, and the increase in the activity of the reticulo-endothelium of the skin. There is a hyperemia, a destruction of the labile elements, and an active proliferation of the fixed and movable connective tissue cells. The irradiation induces an increased activity of the reticulo-endothelium, serving to mobilize also the histogenic wandering cells, which in their turn, by virtue of their special properties and functions, are capable of influencing an inflammatory focus from a distance. As far as any direct action of the rays on bacteria, Desjardins<sup>9</sup> reminds us that numerous experiments

have long since made it clear that most bacteria are not directly influenced to a perceptible degree by doses of roentgen rays such as are commonly employed in treating human beings. To attribute the favorable effect of irradiation to a bactericidal action of the rays would be to maintain an untenable hypothesis. Heidenhain and Fried<sup>5</sup> apparently were able to demonstrate an increase in the bactericidal power of the blood after irradiation of acute inflammatory processes, but Fraenkel and Nissnjevitch<sup>5</sup> could not substantiate this observation. Earl<sup>8</sup> brings up the question as to whether irradiation acts by hastening the natural life cycle or destruction of the white blood cells or as a destructive agent to bacteria, but tends to lean toward the first point, by stating that when treatment is given after the earliest stages, phagocytosis and suppuration tend to be hastened and surgical drainage may have to be instituted sooner than if irradiation had been omitted.

Desjardins<sup>7</sup> has summed up the conditions existing in chronic inflammatory processes as follows: Chronic inflammations are characterized by varying degrees of leukocytic infiltration, proliferation of connective tissue, necrosis, caseous degeneration, calcification or hyaline or amyloid change. Cells which have undergone necrosis or calcification and the products of cellular degeneration can not be influenced by the rays. Therefore, the only elements susceptible to roentgen rays in a chronic inflammatory lesion are the infiltrating leukocytes and the proliferating connective tissue. When the leukocytic infiltration preponderates over connective tissue, favorable response to the rays should be greater and more rapid, because the leukocytes are exceptionally sensitive, whereas connective tissue cells are relatively resistant. This is precisely what is seen clinically. When a lesion is of short duration, it is more amenable to irradiation, probably because the infiltrating leukocytes have not been replaced to a great extent by connective tissue. On the other hand, when a chronic lesion contains a greater proportion of connective tissue, the effect of treatment is

slower. This probably explains why, in chronic inflammatory conditions of the middle ear, doses of roentgen rays must be repeated at intervals for some time.

#### UNFAVORABLE EFFECTS OF IRRADIATION

There does not seem to be any need for concern about any unfavorable effects produced by irradiation. Watson and Scarborough<sup>17</sup> found that bone necrosis is produced only when a single massive dose of the rays is given, and that a given total quantity of radiation received always produced less inhibition of bone growth the larger the number of times the dose was divided or the longer the intervals between exposures. Clark<sup>2</sup> showed that mucosa covered with cylindrical epithelium is much less radiosensitive than that covered with pavement epithelium. The doses used in this form of therapy average about one fifth of an erythema dose per exposure and it is rare that more than three or four exposures are given. After irradiation of lymphoid structures, fibrosis may appear if excessive doses are employed, but proliferation of the connective tissue cells is slow and fibrosis is frequently masked by the more rapid proliferation of the unaffected lymphocytes.

#### TECHNIC

In conjunction with my associates,<sup>1</sup> I have done quite a bit of work in this field, with what we consider good results in the treatment of otitis media. The technic employed by us varied at first, but the majority of our cases received and are continuing to receive 85 KPV, 5 MA, 14 inch TDS, and 1 mm. aluminum filter. We have not followed a hard and fast rule as far as dosage is concerned, but have taken into consideration the acuteness or duration of the condition and the age of the patient. In mild cases in infants, we have used from 50 to 60 r units and in young children and adults the dosage has varied from 60 to 100 r units. In cases of acute otitis media in determining whether to use x-rays alone rather than to precede the radiation by a myringotomy, we use the following criteria: (1) Temperature not over 99.6° F. and (2)

bulging of the drum without obliteration of the short process. We are not able to set a definite limit as to the interval between irradiations in cases of acute catarrhal otitis media, because our patients required only one treatment. In cases of acute purulent otitis, from three to seven days should elapse between treatments. In chronic purulent otitis media, therapy should be given every week or 10 days.

#### RESULTS OF IRRADIATION

Our series comprises 65 cases, consisting of 35 cases of acute catarrhal otitis media, 23 cases of acute purulent otitis, and seven of chronic purulent otitis. The group of acute catarrhal otitis comprises approximately half of our cases because we have attempted to employ this therapy in preference to myringotomy. These cases required only one irradiation, with an average of 73.62 r units, and the tympanic membranes were normal in three days.

Approximately one-third of the group consisted of acute purulent otitis media. They received an average of 1.32 treatments with an average dose of 71.91 units, and the ears were dry in nine days.

About one-ninth of the cases were of chronic purulent otitis media. An average of 1.33 treatments was given with an average dose of 75.38 r units, and the ears were dry in 12.66 days.

Two cases in this series need further discussion. One patient with acute purulent otitis media following influenza on whom bilateral myringotomy was performed, on the sixth day had a marked rise in temperature with pain and tenderness over both mastoid tips. She was admitted to the hospital and radiographically there was cloudiness of both mastoids. X-ray therapy to both ears resulted in freedom from pain within 24 hours and normal temperature the following day. One ear was dry on the eighth day following therapy, but the other received another treatment and became dry on the fourteenth day.

The second case was one of bilateral otitis media purulent chronica of four months' duration following spontaneous rupture. Roentgen therapy resulted in dry ears

within five weeks. One year later the discharge recurred in the same ear again, but did not respond to x-ray therapy and necessitated a radical mastoidectomy.

#### SUMMARY

The main mode of action of x-rays in the middle ear seems to be the promotion of liquefaction and absorption of the inflammatory exudate and death of the organisms by the destruction of the leukocytes with the liberation of lysins and antibodies. The results of this form of therapy speak for themselves. Any physician who employs irradiation in the proper cases will be more than satisfied with the results. X-ray therapy in these conditions is no panacea. One should not rely exclusively on its effect and thus omit an indicated surgical procedure, but on the other hand this form of therapy should be given to all patients in whom a surgical procedure is not indicated.

#### REFERENCES

1. Brown, J. P., Titcher, L. L., and Lawson, W. E.: X-ray therapy in acute and chronic otitis media, *Am. J. Roentgenol.*, 40:285, 1939.
2. Clark, G. L.: A 1936 survey of the biological effects of x-radiation, *Radiology*, 26:395, 1936.
3. Cushway, B. C. and Maier, R. J.: Roentgen therapy in inflammatory and infectious lesions, *Illinois Med. J.*, 72:517, 1937.
4. Daniel, G.: Roentgen therapy of otorhinolaryngological inflammatory involvements, *Bull. et mém. Soc. de radiol. med. de France*, 24:103, 1926.
5. Desjardins, Arthur U.: Radiotherapy for inflammatory conditions, *J. A. M. A.*, 96:401, 1932.
6. Desjardins, Arthur U.: The action of roentgen rays or radium on inflammatory processes, *Radiology*, 29:436, 1937.
7. Desjardins, Arthur U.: Roentgen therapy for inflammatory conditions, *Proc. Staff. Meet. Mayo Clinic*, 14:177, 1939.
8. Earl, David M.: Roentgen therapy in certain infections, *J. Iowa State Med. Soc.*, 28:142, 1938.
9. Goldman, R.: The roentgen treatment of acute otitis media, *Strahlentherapie*, 33:152, 1929.
10. Granger, A.: Treatment of infections of the mastoids of infants, *New Orleans Med. & Surg. J.*, 84:111, 1931.
11. Levin, S. J.: Roentgen ray treatment of some inflammatory conditions in childhood, *J. Pediatrics*, 6:453, 1934.
12. Lucinian, J. H.: Treatment of otitis media and mastoiditis by the roentgen ray, *Am. J. Roentgenol.*, 36:946, 1936.
13. Milani, E.: Radiotherapy of inflammatory affections, *Strahlentherapie*, 43:401, 1932.
14. Roberts, M. H.: A study of mastoid infection in children, *South. Med. J.*, 29:1207, 1936.
15. Schillinger, R.: The apparent therapeutic effect of the roentgen ray upon the clinical course of acute mastoiditis, *Radiology*, 18:763, 1932.
16. Tyler, A. F.: X-ray treatment of inflammations, *Arch. Phys. Ther.*, 18:766, 1937.
17. Watson, W. L., and Scarborough, J. E.: Osteo-

radionecrosis in intraoral cancer, *Am. J. Roentgenol.*, 40:524, 1938.

18. Wintz, H.: Roentgen therapy in inflammatory diseases, *Radiology*, 31:156, 1938.

19. Yocum, A. L., Jr.: X-ray treatment of chronic otitis media, *Med. Herald*, 44:268, 1925.

#### DISCUSSION

Dr. Monte Meyer (New Orleans): I wonder if other otolaryngologists, especially in other sections of the country, have had the same good results as Dr. Titcher has had.

In a symposium on otitis media and mastoiditis, at the Academy a few years ago, this subject was discussed, and the concensus of opinion was that x-ray was without value in the treatment of otitis media and did not prevent mastoid complications. My experience, although limited, leads me to agree with the essayist, and a simple way to get this is when you order an x-ray of the mastoids, to ask the roentgenologist to give a double exposure to each mastoid, and then this can be repeated in 48 hours.

Dr. H. Ashton Thomas (New Orleans): I was particularly interested in Dr. Titcher's discussion of x-ray for otitis media because he mentioned in his paper Dr. Granger's work. It was during my stay at Charity Hospital that we first began to notice

this thing. Several cases were presented to Dr. Granger for an x-ray, and as I followed up these cases which were scattered in various wards, I would come back to Dr. Granger and say that these cases he had rayed seemed to clear up very dramatically, and from that Dr. Granger became very enthused, and perhaps caused us to become over-enthused.

I am very much in accordance with Dr. Titcher, that there is a very definite improvement, particularly in cases where the infection is confined to the middle ear. I think the type of cases where we would have poor results would be the cases where there is not true otitis media, but also mastoiditis, particularly where there is definite obstruction and the exudate is unable to drain through the ear, causing stagnation in the mastoid. You can x-ray, but there is no effect.

Dr. Leon L. Titcher (In conclusion): There is one thing I did not mention and that is the dramatic suddenness with which pain is relieved following x-ray in the acute catarrhal cases. There may be two or three reasons that the patient is relieved of pain; it is supposed to be due to the rapid liquefaction and absorption of the material in the middle ear.

---

### ACUTE SPINAL EPIDURAL ABSCESS\* WITH A REPORT OF FOUR CASES

J. O. WEILBAECHER, JR., M. D.†

NEW ORLEANS

Acute infection of the spinal epidural space is ordinarily believed to be infrequent, if not actually rare. In a search of the records of Charity Hospital of Louisiana at New Orleans for the last 33 years we have been able to locate only four cases, and Jefferson Browder has informed me that only four cases were observed, one of which was diagnosed at necropsy, during a five year period at Kings County Hospital in Brooklyn, in approximately 55,000 yearly admissions.

On the other hand, the condition may not be as rare as it is usually supposed to be. H. W. Woltman, in reply to my inquiry as to the incidence of acute spinal epidural

abscess at The Mayo Clinic, has informed me that the average there is two cases a year. Furthermore, three of the four cases reported in this paper from Charity Hospital in New Orleans occurred during the 17 month period ending in February, 1939.

These figures suggest very strongly that the condition, although it is infrequent, is by no means rare, and is probably being overlooked rather than not occurring. In most of the reported cases the diagnosis, if it was made at all, was made late, probably because physicians generally accept the rarity of the condition as a fact, and therefore fail to look for it. Yet diagnosis, as we shall point out, is not particularly difficult if the possibility be borne in mind. The symptomatology, as our own and other reported cases show, tends to be rather characteristic.

#### CASE REPORT NO. 1

M. D., a white male 20 years old, was admitted October 13, 1931, with flaccid paralysis of both legs. Four days before admission he had been suddenly seized with a severe, stabbing pain in the midline of the back. The pain was constant and intense, and had persisted since the onset in spite

\*Read before the Orleans Parish Medical Society May 8, 1939.

†From the Department of Medicine of the School of Medicine of Louisiana State University, and the Medical Division of Charity Hospital of Louisiana at New Orleans.



of sedation. He had had fever, but no other symptoms until the evening before admission. Then he felt considerably worse, vomited his supper, and shortly thereafter noticed a tingling sensation in the toes of both feet, which gradually ascended to the level of the knees. During the night he was unable to void, and noted marked weakness in both legs. The following morning both extremities were completely paralyzed and the paresthesia had ascended to the level of the umbilicus, though the severity of the pain in his back had decreased. His physician, who was unable to demonstrate any local lesion to account for the symptoms, catheterized him and referred him to Charity Hospital. On admission, after careful questioning, he was able to recall that six days before the onset of the pain he had noticed a skin infection on the left elbow.

The patient's temperature was 101°F., the pulse rate 104, and the respiratory rate 20. There was flaccid paralysis of both lower extremities. Sensation for superficial pain, heat, and cold was decreased below the fourth thoracic segment and absent below the sixth. No abdominal reflexes could be elicited. The urinary bladder was palpable. The skin lesion mentioned above was noted on the left elbow. Urinalysis revealed nothing abnormal. The white blood cells numbered 7,250.

A clinical diagnosis of infectious myelitis was made. Spinal puncture on the third and eighth days after admission revealed a positive Queckenstedt test. The fluid was clear and the protein content increased, but no pleocytosis was observed. Radiologic examination of the spine revealed no abnormalities.

The patient continued to have fever, ranging to 103°F. The neurologic findings remained unchanged, and catheterization was required. October 31 (the twenty-third day of the illness) tenderness was demonstrated over the spine of the fourth dorsal vertebra. A diagnosis of epidural abscess was made, and surgery was advised.

At operation the spines and laminae of the second through the seventh thoracic vertebrae were removed, and a dark red mass was revealed, which involved the dura, was very friable, and was covered with inflammatory exudate. Normal extradural fat was encountered at each end of the wound. The wound was closed over a large rubber dam drain.

Following operation there was little change in the neurologic findings except that sensation to pain was noted as low as the hips. The patient ran a septic course, and died December 28, 1931, almost three months after the beginning of his illness.

Postmortem examination revealed inflammatory changes in the extradural tissues, with changes suggestive of degeneration in the white matter of the spinal cord. Microscopic sections of the cord revealed degeneration of the lateral half of the fasciculus cuneatus and of the corticospinal and

vestibulospinal tracts. In these areas there was vacuolization of the tissue associated with accumulation of Gitter cells.

#### CASE REPORT NO. 2

G. Y., a white male 18 years old, was admitted August 30, 1937, complaining of paralysis of both legs. Seven days before admission he was seized with severe pain in the midline of the back, which radiated to the calves of both legs. The pain was continuous and increased in severity. He had fever (100°F.), but no chills. The following day he observed weakness of both legs, which became progressively worse, and on the sixth day he could no longer walk. He felt considerably worse on that day, had generalized pains and twitching of the leg muscles, and vomited several times. That night he was unable to void. The following morning his physician referred him to Charity Hospital. On admission, after careful questioning, he stated that a furuncle on the lower back had been incised several days before his illness began.

The patient's temperature was 101°F., the pulse rate 88, and the respiratory rate 24. He was acutely ill. There was flaccid paralysis of both lower extremities with slight muscle tenderness of the left thigh. The patellar and Achilles reflexes were absent. Sensation to pain was absent over both lower extremities, exclusive of the lateral and medial aspects of both thighs. The abdomen was distended and the urinary bladder palpable. An incised furuncle was present on the back over the lower dorsal vertebra. Urinalysis revealed nothing abnormal.

A diagnosis of acute anterior poliomyelitis was made, and the patient was sent to the contagious unit. A spinal puncture revealed a positive Queckenstedt test. The fluid was clear and the protein content markedly increased; there were 20 lymphocytes per cu. mm. The diagnosis was then changed to transverse myelitis. X-rays of the spine revealed no abnormalities.

The patient required repeated catheterization, and his bowels moved only after colonic flushes. His temperature ranged between 100° and 102° F. On the eighth day after admission (the fifteenth day of the illness) he was found to have complete anesthesia below the umbilicus, and complete flaccid paralysis of both lower extremities and the lower trunk, with areflexia, as well as the sphincter disturbances already mentioned.

Repeated spinal puncture between the third and fourth lumbar vertebrae revealed a complete block of the spinal subarachnoid space with xanthochromic fluid. At this time there was visible swelling of the tissues in the region of the twelfth thoracic interspace, and thick pus was aspirated through a large spinal needle. The diagnosis of epidural abscess was thus established.

Operation, on the nineteenth day of the illness, revealed free pus, which had burrowed through the

first lumbar interspace to the sacrospinal muscles. About two ounces of the pus was removed by suction. Upon removal of the spines and laminae of the tenth dorsal through the second lumbar vertebrae, an extensive epidural abscess was encountered. It was felt that adequate drainage had been established, although pus exuded from both ends of the unopened epidural space. Closure was effected loosely over a rubber dam drain, which emerged from the lower part of the wound. A culture from the pus was reported as *Staphylococcus albus*. A culture of the spinal fluid had been reported sterile.

The fever continued unabated, and a severe infection of the urinary tract developed, which did not respond to treatment. The extension of the flaccid paralysis to both upper extremities, and irregular areas of anesthesia over both, suggested that there had been an extension of the spinal cord involvement. Decubitus ulcers formed over the sacrum and hips. The patient was removed from the institution by his family October 24, about two months after the beginning of his illness. His condition then seemed hopeless. A recent inquiry, however, has produced the information that he is still alive and is fairly well. The paralysis has continued, but his general health is good, he eats well, is gaining weight, and gets about in a wheel chair.

#### CASE REPORT NO. 3

N. L., a white male six years old, was admitted October 5, 1937, complaining of pain in his legs. Fifteen days before admission, after jumping from a horse-drawn wagon, he experienced a sharp pain in the right upper thigh. The following day, although he went to school, he soon returned home complaining of severe pain in the back, the right leg, and both hips. The following day the pain was much worse, and he was unable to walk. On this day he developed fever ( $101^{\circ}$ - $103^{\circ}$  F.), and anorexia, and his mother observed that he voided frequently, but only small amounts of urine. During the next four days his abdomen became distended and there was obstinate constipation. His condition apparently remained unchanged until his admission to the hospital on the sixteenth day of his illness.

The temperature was  $103^{\circ}$  F., the pulse 130, and the respiratory rate 28. The child was acutely ill. He preferred to lie on his left side, with the thighs and legs flexed, and complained of severe pain when any effort was made to move him or to straighten out his legs. There was marked hyperesthesia over both lower extremities, no areas of anesthesia being noted. There was no motor paralysis. The Brudzinski reflex was positive. Attempts to elicit the Kernig reflex caused a great deal of pain in the back. The tendon reflexes were absent. The abdomen was distended, and there was incontinence of urine and feces. Uri-

nal analysis showed nothing abnormal. The white blood cell count was 14,000 per cu. mm.

The admission diagnosis was tuberculous meningitis. Subsequent spinal puncture revealed a positive Queckenstedt test, the fluid being xanthochromic and coagulating spontaneously. Radiographic examination revealed no abnormality of the spine. There was an irregularity along the inner border of the distal end of the head of the femur "suggestive of an exostosis."

October 8 (the nineteenth day of the illness) definite tenderness and localized swelling of the tissues were noted between the spines of the ninth and tenth dorsal vertebrae. The suspicion that an epidural abscess was present was confirmed by aspiration of pus through a large spinal needle introduced into the interspace.

The spines and laminae of the ninth through the twelfth dorsal vertebrae were removed, revealing a well localized abscess, containing about 4 c. c. of pus, in the region of the ninth and tenth dorsal vertebrae. The wound was closed over a rubber drain which was brought through the lower angle. Culture of the pus was reported as *Staphylococcus albus*. A blood culture was reported negative, as was a culture of the spinal fluid.

There was a prompt and marked improvement in the child's general condition following operation. On the third day he voided voluntarily. Within three weeks the wound had closed. At this time there was good motion in the legs, but irregular areas of hyperesthesia persisted, and the bladder function seemed automatic.

Persistent low grade fever and pain in the right hip was explained when radiographic examination revealed an osteoarthritis of the joint. Since there had been no symptoms referable to the right hip or the back prior to the onset of the illness, it is assumed that trauma was an etiologic factor in both the epidural abscess and the osteoarthritis.

The child was discharged from the hospital May 1, 1938, seven months after admission. At this time the only residual of his illness was slight pain in the right hip on walking. A recent note from his mother reports that he is now perfectly well, with normal bowel and bladder function.

#### CASE REPORT NO. 4

H. P., a white boy 7 years of age, was admitted February 3, 1939. Fourteen days before admission he complained of a severe, sharp pain in the lower thoracic region of the back, which was constant and which seemed to penetrate through to the front of the chest. Because he had had a head and chest cold prior to the onset of the pain, his physician diagnosed the condition as pleurisy, and treated him accordingly, keeping him in bed.

The ninth day of his illness the child noted weakness in his legs, which progressed in severity until the twelfth day, when he could not walk at all. On this day he was given a laxative, which

had to be repeated before results were obtained. On the morning of his admission to the hospital he complained of severe pain and was unable to void. During his illness he had had fever, varying from 99° to 102° F. Questioning after his admission to the hospital disclosed the fact that two months before the onset of his illness he had had a series of furuncles on the lip, thigh, wrist and back, all of which had completely healed for at least a month before the onset of symptoms.

The temperature was 100° F., the pulse rate 115, and the respiratory rate 20. There was slight weakness of both legs and the tendon reflexes were diminished. The urinary bladder was distended. Urinalysis revealed nothing abnormal. The white cell count numbered 16,350 per cu. mm.

On the second day after admission (the sixteenth day of the illness) the child was found to have a partial flaccid paralysis of both legs, which was more marked on the left. The Babinski sign was present bilaterally, and there was resistance to flexion of the neck. The bladder was palpable. Spinal puncture revealed a clear fluid under slight pressure, which contained 160 lymphocytes per cu. mm., and a markedly increased protein content. No block of the spinal subarachnoidal space was noted.

The child was transferred to the contagious unit with a diagnosis of acute anterior poliomyelitis. The following afternoon the flaccid paralysis of both legs was found to be complete. He had a bilateral Babinski sign and absent patellar and sluggish Achilles reflexes. Complete anesthesia was present below the level of the umbilicus, and both the bladder and the anal sphincters were paralyzed. Repeated lumbar puncture was followed by marked drop in pressure after the removal of a few c. c. of fluid. Three hours later fluid could be obtained only by aspiration, and it was assumed that a block was present. Two c. c. of lipiodol were therefore instilled into the spinal subarachnoidal space, through the second lumbar interspace, and on the following morning fluoroscopy in the Trendelenburg position confirmed the presence of a block at the approximate level of the tenth dorsal vertebra. The diagnosis of epidural abscess was thus confirmed.

The spines and laminae of the fifth through the tenth dorsal vertebrae were removed. Marked edema and hemorrhagic changes were noted in the epidural fat, with multiple small pockets of thick yellow pus. There was, however, no large single pocket of pus. The wound was closed over a rubber dam drain. Culture of the pus was reported as *Staphylococcus albus*, as was the blood culture taken the day before operation. Culture of the spinal fluid was sterile.

There was profuse drainage of pus from the wound after operation, and the child showed steady improvement. On the sixth day after operation he moved the toes of the right foot slightly, and

moved the left leg very well. As this paper is written, he is still in the hospital, but steadily improving. There has been a gradual return of motor function in the lower extremities, and muscle weakness seems at the present time to be the only residual of the illness. The Babinski sign is marked bilaterally, and the bladder function is good, except for nocturnal enuresis.

#### ANATOMY

After reviewing the literature on extradural infections in 1926, Dandy was impressed with the tendency of such lesions to occur only in the spinal epidural space, only in the dorsal half of that space, and chiefly in the thoracic region. The tendency for such localization, he thought, could be explained by the anatomy of the epidural space, which he described as follows: "Dissection of a cadaver shows that the spinal epidural space is present only dorsal to the spinal nerve attachments. Ventral to the nerves the dura is everywhere closely applied to the bones of the vertebrae and their ligaments from the first cervical to the second sacral vertebrae. Below this level the space surrounds the dural sac on all sides. The space is filled with fat and loose areolar tissue containing numerous veins.

"Of greatest importance are the variations in the size of the epidural space. In the cervical region the space is only potential, there being only a few strands of fibrous tissue and almost no fat between the laminae and dura. The epidural space really begins to appear at the seventh cervical vertebra and gradually deepens along the thoracic vertebrae, attaining a depth of about 0.5 to 0.75 cm. between the fourth and eighth dorsal vertebrae. The space tapers again and becomes shallow between the eleventh thoracic and second lumbar vertebrae. Over the remaining lumbar and the first and second sacral vertebrae the epidural space attains its greatest depth. At the second sacral vertebra the dural envelope ends and a continuation of the epidural tissue fills the caudal end of the sacral canal. Only at the lower terminus of the spinal dura does the space extend ventrally; here for a short distance the dura is encircled by the epidural fat

and areolar tissue. The size and shape of the space therefore appear to be secondary to the variations in size of the spinal cord. Absent over the cervical enlargement and nearly so over the lumbar swelling the epidural space becomes deepest where the spinal cord or the mass of its roots is smallest, i. e., in the upper dorsal and lumbar sections."

#### ETIOLOGY

Although infection may invade the epidural space by direct extension or lymphatic spread from suppuration in neighboring tissues, this is not usually the process. In the majority of acute abscesses the antecedent infection is remote from the spine, and is usually some skin lesion, such as a furuncle or carbuncle. Invasion of the epidural space in such instances occurs by metastasis through the blood stream, and the infecting organism, with few exceptions, is the staphylococcus. Cases of acute epidural abscess due to the pneumococcus have been reported by Peters, Schick, and Browder and Meyers. The latter authors point out that Delearde has reported infection by the streptococcus (as has Cohen), Raymond and Sicard by the typhoid bacillus, Schmidt by the *Bacillus pyocyaneus*, and Rand by the *Oidium coccidioides*.

Many observers believe that the infecting bacteria are implanted directly into the areolar tissue or blood vessels of the epidural space. Browder and Meyers are convinced, however, that infection of the space is usually secondary to osteomyelitis of a vertebral body or lamina, as first suggested by Ramsay Hunt. Osteomyelitis of varying degrees is found in practically all cases examined at operation or necropsy, but it is difficult to determine whether or not the changes in the bone are primary. Gasul and Jaffe noted trauma as an etiologic factor in 12 of the 67 cases of epidural abscess which they reviewed. It seemed to be a causative factor in our third case, and many believe that it plays a definite etiologic role in the condition.

#### PATHOLOGY

The inflammatory process may consist of frank suppuration, or of a granulomat-

ous mass of variable extent, which may contain multiple small areas of suppuration, as in our fourth case. In the frankly suppurative type of abscess the infection may be localized, as in the third case, or spread diffusely through the epidural space, as in the second case. Pus may burrow through the intervertebral foramina, producing pressure upon the spinal nerves, and, by further extension, may invade the surrounding tissues, as in the second case. In such cases there may be visible swelling of the overlying muscles and subcutaneous tissues. The infection as such does not penetrate the dura. An osteomyelitis of a vertebral body, however, may rupture directly into the subarachnoidal space, since the dura anteriorly is intimately attached to the posterior longitudinal ligament of the spine.

Ayer and Viets state that there is no distortion of the spinal cord and no diminution in its size in the region of pressure. They noted the presence of vacuoles and evidences of degeneration in the white substance. Hassin noted changes only in the white substance, these consisting of "Swollen axons and myelin, broken up myelin, distention of the glia tissue spaces, thickening of the glia septums, and hyperplasia of the vessel walls." This author emphasizes that identical changes are produced by experimental mechanical compression of the spinal cord. Some investigators believe that actual circulatory changes occur, and Hassin and Browder and Meyers have observed thrombosis of the vessels of the cord in the region of the abscess.

#### CLINICAL PICTURE AND DIAGNOSIS

A careful history is necessary in these cases because the patient usually does not, of his own accord, mention the primary infection, either because he considers it too trivial or because it has healed completely before the onset of symptoms. Questioning, however, will usually elicit a history of a preceding skin infection, or, less commonly, of an upper respiratory infection, osteomyelitis, otitis media, cervical adenitis, or a urinary tract infection. In some instances, as in the third case, there is a

history of trauma without antecedent infection.

The involvement of the epidural space is heralded by sudden, severe pain in the middle of the back, usually localized to one or two vertebrae, but sometimes radiating to the legs, as in the second case. The pain is intense, usually increases in severity, and is not relieved by sedation or change of position. Other symptoms may include fever, malaise, anorexia, and possibly nausea or vomiting. Later in the illness the pain may assume a radicular (girdle) distribution.

Within a variable period of time after the onset, usually from a day or two to fourteen days, symptoms and signs of spinal cord involvement make their appearance, their character and extent depending upon the location and type of the epidural lesion and the rapidity with which the cord is damaged. Among the earliest symptoms are paresthesia or dysesthesia, as in the first case. These are soon followed by weakness of one or both legs, possibly with prodromal twitching of the muscles, as in the first and second cases. As the lesion progresses flaccid paralysis ensues, and may become complete below the segment involved. Varying degrees of hyperesthesia are noted below this level. In the later stages anesthesia may become complete. With the onset of motor paralysis there is usually retention of urine and feces, which is soon replaced by incontinence, the bladder emptying automatically.

When the patient is examined, fever is noted, and frequently the primary infection can be identified. Pain and resistance are observed when the neck is flexed, and there is marked pain in the back when an attempt is made to elicit the Kernig reflex. Tenderness may be noted over the spinous process of the involved vertebra, and swelling and tenderness over the adjacent soft parts if they have become involved, as in our second and third cases.

Signs of spinal cord damage are usually present, and, like the symptoms, are determined by the location, type, and extent of the epidural infection. Flaccid paralysis may predominate in one lower extremity,

as in the fourth case, or may involve both equally and may include the lower trunk muscles. Early in the illness there may be only muscle weakness, as in the third case. Disturbance in sensation may consist of hyperesthesia, as in the third case, or varying degrees of sensory loss below the involved segment. The abdomen is usually enlarged because of tympany and a distended urinary bladder. The lower abdominal and cremasteric reflexes are usually absent. The patellar and Achilles reflexes are decreased or absent, but later return. The Babinski reflex is frequently present and bilateral.

The upper extremities are involved only when the cervical region of the cord is affected, as occurred after operation in our second case. Under these circumstances the chief signs are flaccid paralysis and partial anesthesia.

Spinal puncture is of diagnostic value in demonstrating block and can be performed safely if certain precautions are observed to prevent contaminating the subarachnoidal space. Since it is difficult to determine by clinical signs the extent and type of the lesion present, the safest plan is to use repeated gentle aspiration as the needle is slowly introduced. If its lumen is sufficiently large, the exudate may thus be withdrawn from an epidural abscess which contains free pus. This maneuver established the diagnosis in our second and third cases. In the fourth case, because there was no large pocket of pus present, the procedure probably would have been of no value, and the subarachnoidal space might have been contaminated if the needle had been introduced too deeply.

Most abscesses are in the dorsal region and a low lumbar puncture, properly performed, should do no harm. Block is demonstrated by lack of response to jugular compression and by a marked drop in pressure after the removal of only 5 to 10 c. c. of fluid, as in the fourth case. The fluid is usually clear, and in cases of longer duration may be xanthochromic. There may be an increase in lymphocytes. The protein content is always markedly increased,

so much so that the fluid may coagulate spontaneously, as in our third case. The block may be verified and its exact site demonstrated by the instillation of lipiodol into the subarachnoidal space, with subsequent radiologic examination in the Trendelenburg position. This procedure confirmed the diagnosis and assisted in the localization of the lesion in the fourth case.

If infection is suspected in the lower epidural space, an exploring needle may be introduced through the sacral hiatus. A cisterna puncture is sometimes of diagnostic value if purulent leptomenigitis is suspected.

Examination of the blood usually reveals a neutrophilic leukocytosis. Blood culture should be performed in all cases, for the epidural infection may be only one manifestation of a pyemia or septicemia. In our fourth case the blood culture was positive for the causative organism. Radiologic examination is not usually helpful, but may occasionally reveal vertebral osteomyelitis. Cultures of spinal fluid removed by puncture through non-infected tissue are usually sterile unless a complicating leptomenigitis is present.

It should be relatively easy to diagnose an acute spinal epidural abscess if the possibility of its occurrence be kept in mind. If the following sequence of events is present, it is almost diagnostic: a history of a previous infection, usually furunculosis; less often, a history of trauma; sudden, severe pain in the back, possibly radiating along the nerve roots; fever; leukocytosis; after a variable period of time, anesthesia, flaccid paralysis, and areflexia involving the lower extremities; retention of urine and feces, later incontinence of both; tenderness over the involved vertebra; the demonstration of a block of the spinal subarachnoidal space, and a marked increase in the protein content of the spinal fluid.

In atypical cases spinal epidural abscess is likely to be confused with suppurative leptomenigitis, infectious myelitis, acute anterior poliomyelitis, cord tumors, and other less common causes of impaired spinal cord function.

#### TREATMENT

The only curative treatment for acute spinal epidural abscess is early laminectomy and adequate drainage.

#### PROGNOSIS

The condition is fatal unless operation is done, and surgery must be resorted to promptly if life is to be saved and permanent damage to the spinal cord avoided or minimized. The importance of prompt diagnosis and prompt laminectomy is well emphasized by Slaughter, Fremont-Smith and Munro, and by Cohen, who each reported a case in which diagnosis was made before the onset of the neurologic signs and operation was followed by prompt and complete recovery.

The character of the lesion also seems to influence the prognosis. Rapidly spreading, diffuse lesions, as in the second case, are more likely to produce earlier and more extensive damage to the spinal cord than such localized infections as were observed in the third and fourth cases.

If the abscess has developed as part of a septicemia, the general condition will be likely to determine the outcome.

Death is usually due to sepsis or spinal cord damage, with resultant decubitus ulcers, urinary tract infections, or pneumonia.

#### SUMMARY

1. Acute spinal epidural abscess probably occurs more often than the literature would indicate, but may not be recognized because its occurrence is not suspected.
2. Four cases verified by operation are reported from Charity Hospital of Louisiana at New Orleans, three of which were seen during a period of seventeen months. Necropsy findings are reported in the single fatal case.
3. The regional anatomy, etiology, pathology, clinical picture, diagnosis, treatment, and prognosis are briefly discussed.
4. It is emphasized that early diagnosis and prompt laminectomy are essential if

life is to be saved and residual damage minimized.

I wish to express my thanks to Dr. G. C. Anderson, Dr. J. H. Musser, and Dr. J. G. Stubb for permission to report these cases.

#### BIBLIOGRAPHY

1. Ayer, J. B., and Viets, H. R.: Intraspinous epidural abscess (pyogenic), Boston M. & S. J., 175:865, 1916.
2. Browder, J.: Personal communication.
3. Browder, J., and Meyers, R.: Infections of the spinal epidural space: an aspect of vertebral osteomyelitis, Am. J. Surg., 37:4, 1937. (Extensive bibliography).
4. Cohen, I.: Epidural spinal infections, Ann. Surg., 108:992, 1938.
5. Dandy, W. E.: Abscesses and inflammatory tumors in the spinal epidural space (so-called pachymeningitis external), Arch. Surg., 13:477, 1936.
6. Delearde: Quoted by Browder and Meyers.
7. Gasul, B. J., and Jaffe, R. H.: Acute epidural abscess—a clinical entity, Arch. Pediat., 52:361, 1935.
8. Hassin, G. B.: Circumscribed suppurative (non-tuberculous) perimeningitis, Arch. Neurol. & Psychiat., 20:110, 1928.
9. Hunt, J. R.: Acute infectious osteomyelitis of the spine and acute suppurative perimeningitis, M. Rec., 65:641, 1904.
10. Peters: Quoted by Browder and Meyers.
11. Rand, C. W.: Coccidioidal granuloma, Arch. Neurol. & Psychiat., 23:502, 1930.
12. Raymond and Sicard: Quoted by Browder and Meyers.
13. Schick: Quoted by Browder and Meyers.
14. Schmidt: Quoted by Browder and Meyers.
15. Slaughter, R. F., Fremont-Smith, F., and Munro, D.: Metastatic spinal epidural abscess, J. A. M. A., 102:1468, 1934.
16. Woltman, H. W.: Personal communication.

#### DISCUSSION

Dr. Dean H. Echols (New Orleans): One of the real medical emergencies is the patient who develops paralysis or weakness of the legs within a few hours' time. Such a patient must, of course, have immediate, complete examination and this

examination must include a spinal puncture. I think it is only fair to say that a water manometer should always be at hand when a diagnostic spinal puncture is made. One does not have to buy a manometer. One can use any piece of narrow-gauge glass tubing, which has been boiled, and connect it to the spinal needle with rubber tubing. If you want to know the pressure you can measure the height of the column of fluid with a ruler.

To continue, the patient who rapidly develops paralysis of the legs is an emergency case which may, after examination, turn out not to be an emergency. There are cases of hysterical paraplegia. That will not be an emergency. A patient may prove to have infantile paralysis. Once the diagnosis is made, it is no longer an emergency. There is very little you can do in the way of therapy. If paraplegia is due to hemorrhagic disease or softening of the cord it ceases to be an emergency. If, however, the patient proves to have, on examination, an epidural metastatic tumor or abscess, then there is one chance of saving the patient from permanent paralysis and that is immediate laminectomy.

I have nothing else to say except to repeat the description of the clinical picture. If a patient becomes acutely ill with obvious infection somewhere in the body, temperature of 103°-104°, rapid pulse, leukocytosis and so on, and begins to develop weakness and anesthesia of the legs, there is only one likely diagnosis and that is epidural abscess. One may prove this by demonstrating the presence of a spinal subarachnoid block.

Dr. J. O. Weilbaecher, Jr. (In conclusion): I wish again to emphasize one point. The last three cases were admitted to the contagious ward with diagnosis of acute anterior poliomyelitis or tuberculous meningitis. The existence of an epidural abscess was apparently not suspected by the examining physician.

# [NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Acting  
Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

G. C. Anderson, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*

1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

---

## TROUBLESOME TIMES

We of today are living in a time of turmoil and turbulence. Every day brings forth some new and great problem which can do nothing more than agitate and upset. Europe is engaged in a great war and in the minds of most American citizens it is only a question of time before our coun-

try gets into this conflict. Even if we do not, the fear and worry that this might happen is enough to take one's mind off his usual daily occupation. One hesitates about starting anything new because he does not know what will be going on six months from now or how his status in life will be changed. International and national affairs are literally in chaos. Yet we, in this country, have to be thankful that we do not have to go to bed with gas masks by our sides, and at the present time at least that our loved ones will not be killed or maimed for life. We have much to be thankful for. We are not likely to have to suffer these inconveniences of daily living which must make the life of the European a most unhappy one.

Here in Louisiana we are distressed and upset by the continued evidences of political mismanagement and corruption. We see those whom we have trusted by the ballot to spend all monies we have contributed to the State through taxation, making use of that money for their own personal gains. We even see the freedom of the press threatened by a Louisiana Senator because those ill actions have been publicized. Altogether nationally and locally the calm and peace which one would like to have in his daily life at the present is a thing of the past.

How does this affect the physician personally? If war should come we would be regimented in a way we never dreamed about. Doctors in civil life and in military life would be told what to do and what not to do and even how to do it. We must look forward to and anticipate directions from a central bureau which will make us conduct our professional lives much as it sees fit. Perhaps this may be a blessing in disguise for if the people and the physicians do not like to have everything decided for them centrally there may be a reaction and State Medicine with all it implies which is disagreeable and disadvantageous to the physician will be objected to not only by the doctor but by the mass of people as a whole. It is a truism that it is always darkest before dawn. Undoubtedly world affairs and



Louisiana conditions will improve. They may get worse but ultimately there will be a change, we hope, for the better in every way.

We wonder what will happen to the practice of the men who go away to war. The British Medical Association has arranged a most complete scheme whereby those practitioners who go into the Army or Navy will have their patients taken care of, whereby they receive part of the income from the care of patients and whereby the patients will be returned to the men who have gone after the war has ceased. It is hoped that in the event America gets into the war some such arrangement will be made in this country. The men who were left behind in the last war were overworked and the men who were in the Army thought they were losing or had lost their practice. Bad feeling was engendered between the two groups which can be done away with by foresight and planning. It is certainly hoped that our medical organizations will take into earnest consideration what will be done for the men who go away as well as how best the men who are left can have their assignments.

---

### THE BLOOD COUNT IN THE AGED

---

Innumerable studies have been published in the last few years giving the normal values of the blood count for the average man or woman who is in perfect health, who is young and who is active. The same statistics have been compiled for the infant. However, there is an ever-increasing group of people about whom the standards of normality are not known. This group consists of old people, people who may or may not have variations in their blood count as result of the degenerative processes incident to old age or as result of the wearing out processes which account for the many physical changes in the individual as he passes 60. These changes are so marked that there are now men who are specializing to a limited extent in geriatrics, a specialty which undoubtedly will grow.

The relatively few observations that have been made on older people have, for the most part, suggested that there is no significant difference in the normal adult as age increases, that is, provided the person remained in good health. A recent study of 160 men over 60 years of age was made at the New York City Farm Colony by Miller.\* This is the largest group of elderly people who have had hematologic studies. Miller found that in the majority of old people there was an anemia. The red cell count was diminished so that the average was 4,460,000. The hemoglobin was likewise decreased, with an average of 14.3 grams, proportionally to the decrease in red cells.

Whether or not this anemia is physiologic and is dependent upon the metamorphic changes of age or whether it is due to chronic low grade infections is an open question. About one-third of the aged have a sedimentation rate above normal. In these old people oral sepsis is common, carious teeth are not unusual. Prostatic hypertrophy may account for a low grade urinary tract infection. Bronchiectasis is quite frequently found and likewise a nephrosclerosis of old age may explain anemia on an entirely different mechanism. It may be entirely normal, however, for the cellularity of the red bone marrow to decrease as the years roll on. Whatever the cause of the anemia the fact remains that even in the hypertensive individual the blood count is low in so far as the hemoglobin and the red cell count figures are contrasted with the healthy person of the second or third decade of life. The leukocyte count does not vary from the norm either in the differential values or in the total count.

Aside from the fact that there is normally to be expected a slight anemia in the older person, under abnormal conditions it may be that the anemia will obtain a degree out of all proportion to that which would occur in midlife under similar provocation. Too much stress must not be laid on the anemia in the old.

---

\*Miller, Isidore: Normal hematologic standards in the aged, *J. Lab. & Clin. Med.*, 24:1172, 1939.

## THE TREATMENT OF ASTHMA

Asthma is an extremely common condition and one which is often difficult to relieve. Of course the first step of the physician is to determine the type of asthma and if possible the cause. The type of asthma, miner's, thymic, cardiac, renal, essential, is readily diagnosed when the underlying difficulty is discovered.

Given a patient who has true and so-called essential asthma, allergic in character, the usual procedure is to give the patient a hypodermic of epinephrine, as well as morphine, in some instances, or the barbiturates at the onset of an acute attack. Unfortunately many people who have asthma are allergic to drugs. Aspirin is a classic example but the barbiturates may exaggerate and make worse the condition and many allergists are cautioning against the free use of morphine. Sensitiveness to these drugs may be acquired if the person does not already have the sensitivity. Rackemann\* advises using the bromides, paraldehyde and chloral hydrate rather than the other types of sedatives. Often an intravenous injection of salt solution and 5-10 per cent glucose is helpful to those who are sweating, dehydrated and toxic. Ether and olive oil is somewhat advantageous. An emulsion of equal parts of oil and ether, using about 200 c.c. instilled into the rectum, will sometimes induce near narcosis and a remarkable subsidence of the wheezing dyspnea.

Epinephrine is usually immediately effective but the difficulty of giving repeated

\*Rackemann, F. M.: Allergic diseases, New England J. Med., 221:234, 1939.

injections precludes its use in some cases. To counteract the transitory effect of epinephrine, powdered epinephrine is now dispensed in a suspension of peanut oil so the drug is more slowly absorbed and the effect prolonged. Aminophyllin, one ampoule of 0.20 grams in 10 c.c. of water given intravenously, may yield remarkable results as shown by Efron.

Heliur and oxygen are of value but have to be given by special apparatus which is not available in general practice. However, the apparatus may be at hand on hospital services. Even oxygen itself without the helium apparently tends to soothe local bronchial irritation.

Bronchoscopy is a measure that can be employed by only a few but in a desperate case it might be life-saving.

Lastly, for the chronic asthmatic, a diet which contains a minimum of sodium salts and much meat and vegetables is advantageous when combined with potassium chloride in doses of 6-10 grams (90-150 grains). This regime is reported as being helpful when a patient suffers from chronic asthma. The theory of this action is that while the serum potassium in the blood is increased the cellular potassium is depleted. It is restored by giving a high potassium diet and the potassium containing drug, thus offsetting the deficiency of this salt.

Incidentally, with the present wave of enthusiasm that is sweeping the country for vitamins, vitamin therapy has been recommended and has been employed in the management of asthma but there is no evidence that vitamins have anything to do with the cause of the disorder or that their administration is particularly helpful.

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TRI-STATE HOSPITAL, INC.

Shreveport

The staff of the Tri-State Hospital held its regular monthly meeting, September 14, 1939, following a summer recess of two months. The meeting was called to order at 8 p. m. by Dr. T. J. Bush, chairman, with 30 members present. Minutes of the previous meeting were read and ap-

proved without correction. There being no new or unfinished business the scientific program was presented.

### SCIENTIFIC PROGRAM

Dr. W. J. Taylor presented the case (2405-L) of a white female, aged 57, who entered the hospital August 12, 1939 complaining of a mass bulging from the vagina. She was the mother of

seven children and stated the mass had been present several years. Examination revealed a mass about the size of a grapefruit bulging from the posterior vaginal wall and presenting on the perineum. This was presumed to be a rectocele and on August 15, 1939 operation was performed by Dr. J. C. Willis, Jr. In addition to the rectocele there was found a hernia of the large bowel into the cul de sac comprising part of the mass. The hernia and rectocele were repaired in the usual manner and recovery was uneventful.

Dr. J. M. Gorton next presented the case (2272-L) of a white female, aged 60 years, who entered the hospital on August 2, 1939, complaining of shortness of breath, weakness and abdominal swelling and discomfort upon eating. Past history revealed an operation elsewhere in 1921 at which time three tumors were removed from the uterus. This was followed by a course of deep x-ray therapy, although she was not informed of any malignant condition. In 1926 the gallbladder was removed at another hospital and the patient was told at the time that she had a tumor in the pelvis which should be removed when she was in condition for another operation. Examination revealed an obese white female, somewhat dyspneic. Important findings were mostly limited to the abdomen which was protuberant and presented shifting dullness in the flanks. No masses were palpable by either abdominal or pelvic examinations due to the abdominal distention. Laboratory findings were essentially negative. Despite all treatment this patient became very toxic, developed anuria and expired seven days after admission. Autopsy confined to the abdomen revealed carcinoma of the left ovary, involving all of the pelvis.

Dr. J. E. Knighton, Jr., presented the case (2284-L) of a white male, aged 42, who entered the hospital complaining of pain and partial paralysis of the right arm. This pain had been present for four months, the paralysis about two weeks. Large amounts of vitamin B had failed to help. Physical examination was negative except for a slight tenderness and possible tumefaction at the base of the right side of the neck, and slight impairment of resonance in the right apex. White blood cells 42,000; polys 90 per cent; Wassermann, negative. X-ray revealed a density in the right apex. No definite diagnosis had been made on this case and it was presented as a possible malignancy of the lung, or leukemia with localized infiltration. Discussion of the case with reference to diagnosis and diagnostic procedures followed.

The hospital report was read and approved. The next meeting will be held October 12.

E. W. Booth, M. D., Sec.

HUTCHINSON MEMORIAL CLINIC  
OF THE  
SCHOOL OF MEDICINE  
THE TULANE UNIVERSITY OF LOUISIANA  
New Orleans

Scientific Session conducted by the Department of Orthopedics, Dr. Guy A. Caldwell presiding:

*A Survey of the Hutchinson Memorial Orthopedic Service* (Dr. Lee Schlesinger): The intent and purpose of this survey is to point out the increasing number of patients seen by the orthopedic group of the medical school in the out-patient clinic. It covers the period of the school year from January 1, 1938, until the closing of school in the latter part of May. And it should be added at this point that sincere appreciation is offered the record librarian, Mrs. Ethel Mae Beardsley, for her willing help in making the histories available for study.

Dr. Harry Morris and I covered 662 charts, comprising the number of admittances to the clinic; this does not necessarily add up to the total number of visits, which reaches a much higher figure. Of these admittances it obviously appears striking that only one case is reported as an orthopedic patient from the start, but it must be noted here that the service was used on a consulting basis until about three weeks before the close of the school year.

Of the aforementioned 662 cases admitted for diagnosis and treatment, 88 came under orthopedic consultation; 63 cases, or about 71 per cent, were referred from the surgical division. The great majority of these cases, it seemed, were advanced cases of hypertrophic arthritis, as found on general examination of aged patients among other complaints and physical findings. Twenty-one cases comprised this group, plus five cases of atrophic arthritis were accepted for treatment, but it was found necessary to transfer many of them to the Tulane orthopedic clinic of the Charity Hospital out-patient department where suitable physical therapy measures could be administered to afford these patients symptomatic relief. Thus a great number of our patients were lost because of our lack of facilities for treating them here. The remainder of the cases from the surgery department consisted of strained arches, pronated feet, and local back and ligamentary strains, with only one case of a foreign body in a joint, two simple fractures and one case of Osgood-Schlatter's disease. It is surprising, therefore, to note in the above, how small is the variety of cases seen and also how little could be done for the patient.

Only five patients were referred from the department of medicine. This little group, 6 per cent of the total consulting group, referred only strained arches and backache, but while it is understandable that this type of case is the one most

usually referred, it is worth mention how few cases were sent for treatment.

The other department which offered us an unusually small group was pediatrics. The child is our department's most interesting field, because orthopedic men feel that so many acquired deformities can be prevented by prophylactic measures when the patient is young and plastic, and, secondly, the congenital and crippling deformities, such as club-feet, or chronic poliomyelitis, may be more easily handled in the infant and young child. Only six cases were referred from this department. By conjecture figures in private practice, the proportion of children to adult patients does not offer so wide a difference in numbers and here it should not either. Two reasons present themselves why the orthopedist should see the child: (1) Posture plays such an important part in health in later life, and a few instructions in corrective exercises may stop an incipient dropped shoulder, an early curvature of the spine, or a lordosis induced by protuberant abdomen or head-forward attitude. (2) It is obvious to state that in clinic children, diet is a greater problem than in children of better circumstances. Even excluding the deformities resulting from the stress and strain on bones of rachitic children, there are undernourished children with lack of muscle development as well as the overweight fat baby who by standing on a wide base with feet wide apart gradually walks his leg in to knock-knee.

From gynecology, six patients were seen, usually with the request that a backache, not from pelvic origin, be ruled out from an orthopedic standpoint. There were no cases of overweight women with the marked lordosis of obesity causing lumbosacral symptoms or arthritis caused by menopausal difficulties, such as seen in the other clinics in other institutions. The woman at her menopause and infectious arthritides are the usual cases referred here.

Obstetrics referred one case. More and more frequently in recent years the members of the department have been consulted as to the corseting and brace problem that comes up as pregnancy advances to change the patient's posture. The continuous backache both before and after pregnancy has been overcome in many cases by proper support of the trunk, and we feel the patients here could be aided advantageously by the staff.

Urology referred three patients, a low number, because so many infectious arthritis cases arise with foci in the genito-urinary tract. We feel, of course, that most of these joints as affected by plaster work in conjunction with proper eradication of urologic foci of infection can offer much to help the patient.

*Orthopedic Appliances* (Dr. Rufus H. Allredge): Braces and appliances are indispensable in orthopedic work. They are universally used as ad-

juncts in the treatment of deformity, disease and injury of the skeletal system.

Some appliances are used to obtain correction of deformities while others maintain correction and alignment after it has been obtained by some other method. One of the common uses of any appliance is to bring about immobilization of one or more joints. This may be desirable in order to promote healing of disease or to relieve pain by limiting motion. An appliance may also stabilize a joint and allow locomotion in cases where the muscles have been paralyzed from some disease. The brace in this instance replaces the action of the muscles in stabilizing the joint. The use of appliances has been found to be of especial value in the care of paralytic conditions, especially infantile paralysis. Many victims of this disease have been rehabilitated so that locomotion can be carried out with the use of braces.

In this disease, it may be desirable to put the paralyzed muscle at rest while the opposing unaffected muscle is put under stress. The type of deformity can be predicted by the muscles affected and proper bracing and splinting may prevent the development of these deformities. In cases of complete paralysis of all muscle groups, locomotion may be reestablished by stabilizing the joints with the use of proper appliances.

In fractures of the lower extremity, it is frequently possible and desirable to introduce weight-bearing before actual bony union has taken place. This also may be accomplished by the use of carefully fitted appliances.

Some of the commonly used appliances will be described briefly. They are on exhibition here in the Department of Orthopedic Surgery, Hutchinson Memorial Building, Tulane University.

Appliances are commonly used as adjuncts in the treatment of low back pain with or without sciatica. It should be stressed that thorough, intelligent and detailed examination should be carried out on every case of backache with or without sciatica before an appliance or any other form of treatment is instituted. Every case of backache demands treatment other than the brace and this should not be lost sight of.

The Goldthwaite brace designed by Dr. Joel Goldthwaite of Boston many years ago is still commonly used as a back brace. It is constructed so that it grips the pelvis firmly and two bars extend perpendicularly upward to a transverse bar which runs along the level of the lower borders of the scapulae. This back part connects with the anterior or abdominal part by means of straps and buckles. The abdominal attachment serves to pull the abdomen inward and upward and to improve the general posture. The purpose of this appliance is to improve posture, to hold the abdomen in the normal position and to immobilize the lower spine, especially the lumbosacral joint.

The Knight spinal brace devised by Dr. Knight of New York, who also founded the Hospital for the Ruptured and Crippled, is also used in the treatment of low back pain with or without sciatica. This brace embodies the essential features of the Goldthwaite brace and, in addition, serves to prevent lateral motion of the spine. It is somewhat more bulky than the Goldthwaite brace.

These low back braces may also be used in the preoperative and postoperative care of spine cases.

The sacro-iliac belt incorporating the lumbosacral pad posteriorly is shown on a man-sized rubber model. This appliance is commonly advertised to the lay public by the makers of braces and corsets and is also commonly used in the treatment of backache by the profession. It must be remembered that under the best circumstances it is difficult to distinguish between lumbosacral and sacro-iliac pain. Although this brace aims chiefly at immobilizing the sacro-iliac joints, it may conceivably lend some support to the lumbosacral joint. It is doubtful, however, if this appliance would lend much immobilization to the lumbosacral joint. The indiscriminate use of this appliance must be condemned. However, it is admitted that it may, in some instances of mild pain due to sacro-iliac disturbance, give some measure of relief.

The usual type of corset appliance advised for females by the corset making industry and by some members of the profession is shown on the rubber model. This appliance is simply a form of corset which has a double lacing effect in the back with straps and buckles to tighten it anteriorly and on the sides. There are no metal re-enforcements and the appliance is held down by attachment to the stockings of the individual. It functions chiefly as a corset or girdle and compresses the soft parts so as to lessen the circumference of the body at this site. This appliance is shown and mentioned in order to condemn it for general use. It has little if any effect on immobilizing the back or spine or sacro-iliac joints. There is no reason why any benefit should be expected from this appliance in a case of backache.

It follows from the above that in any real case of low back pain, regardless of whether it is lumbosacral or sacro-iliac in origin, the use of some type of appliance such as the Goldthwaite or Knight braces is recommended. The other appliances may be used in certain selected mild cases but not too much is to be expected from them.

In many orthopedic conditions of the spine, it is desirable to immobilize more than the low back. Some of the appliances used to achieve this end will be shown and described.

The Taylor back brace has a pelvic band posteriorly which fits firmly over the pelvis. Two perpendicular parallel metal bars run along the spine up to the shoulders. The pelvic band is fitted snugly to the pelvis by means of straps and

buckles anteriorly. The upper end of the brace is fixed to the shoulders by means of shoulder straps which go around anteriorly. This brace serves to immobilize the spine from the low back on upward to the high dorsal region. If desired, a neck extension piece may be applied and, in this way, the entire spine may be immobilized. This appliance is used in the aftercare of fractures, the various types of arthritis of the spine and in other orthopedic conditions as well as in the preoperative and postoperative care of certain cases.

In women the use of the Taylor brace may be enhanced by a corset which fits around the lower part of the chest, abdomen and pelvis. This appliance simply covers over the brace and makes it invisible so that the soft tissues do not protrude through the apertures of the brace. It makes the wearing of women's clothes possible so that the brace is not visible. This appliance is shown on the model which Dr. Caldwell has had constructed here in New Orleans.

The efficiency of braces in the treatment of scoliosis is open to question. If any appliance is used in the treatment of scoliosis, the patient must be kept under careful observation at near intervals throughout the time the brace is used. Any increase in the curvature signifies failure of the purpose of the brace and it should be discarded for other measures.

The Barr and the Peabody braces, commonly used in the treatment of scoliosis, are shown. No further comment on these braces seems necessary at this time.

Some of the braces commonly used for the lower extremities will be shown and described briefly.

The long double leg brace with double uprights and pelvic band is most commonly used in cases of poliomyelitis. This brace has joints at the hips, knees and ankles. The pelvic band attachment stabilizes the hips when the hip muscles are paralyzed. The double uprights serve to stabilize the knees and feet and ankle joints. The equinus stop at the ankles holds the foot in the neutral position so that foot drop deformity does not occur. After improvement takes place, the pelvic band may be removed and the use of the individual leg braces continued.

The short leg braces of various types may be indicated in the treatment of poliomyelitis, spastic paralysis and in other orthopedic conditions. Several variations in the short leg brace may be indicated as shown here. These braces include the short leg brace with single upright bar with foot plate, without an ankle joint. The same type of brace with the double upright and with the foot plate and without the ankle joint is commonly used. The double upright short leg brace simply attached to the shoe without the foot plate is also used in many conditions.

The short leg brace with the close fitting, leather cuff extending from the knee down to the ankle

with an ankle joint on the brace without foot plate attachment is commonly used in the after care of fractures. It allows early weight-bearing before union has taken place. This appliance is also used for weight-bearing when delayed or non-union of a fracture exists. Weight-bearing seems to facilitate bony union.

The Thomas ischial weight-bearing caliper splint is used for early weight-bearing in cases of fractures of the lower extremity or in cases of joint disease at the knee and hip. The individual is allowed to bear weight which is transmitted from the ground directly through the double upright bars to the pelvic ring and thence to the ischium. No weight is transmitted through the bones of the extremity.

The Hansson wrist brace is a short forearm brace which holds the hand in dorsal flexion and is used in cases of tennis elbow. This relaxes the extensor group of muscles and takes the tension off the site of origin at the external condyle of the humerus.

*Correction of Foot Disorders* (Dr. Guy A. Caldwell): The correction of foot disorders is usually the commonest problem met in clinic work and it is to be hoped that such cases will form a larger proportion of our work hereafter.

Foot defects may be divided into the congenital conditions, such as, club-feet, metatarsus varus, and the like, and acquired defects. The latter must then be subdivided into those which occur in infancy and early childhood, those occurring among the growing girls and boys, and, lastly, those seen in adults, both men and women.

When we consider the foot defects commonly seen in childhood, we find that they consist almost entirely of pronated feet which are associated with bowlegs and knock-knees. The alignment of the legs, knees and ankles with the feet is particularly important in this youngest group of patients because, by properly controlling the balance and position of the feet, faulty alignment of the legs can readily be corrected in the majority of cases. While the severer degrees of knock-knees and bowlegs require bracing in conjunction with appropriate dietary and medicinal measures in order to obtain correct alignment, the milder degrees which often are not rachitic in origin, but associated with overweight or malnutrition instead, can very well be controlled through consistent efforts to balance and protect the feet. Proper care of the feet and legs during these years that will enable a child to reach the school age with correct alignment and good muscles is a measure of preventive orthopedics. The value of preventive measures in early childhood cannot be fully appreciated unless one realizes the high percentage of adults who suffer with foot disorders that are secondary to faulty alignments retained from childhood.

Treatment of pronated feet during infancy and childhood is accomplished frequently by the use of

well-fitted, stock shoes with a wedge of leather on the inner side of the heel. It does not suffice, however, to have these corrections used on one or two pairs of shoes. Pronated feet are not corrected until the bowleg or knock-knee tendency has been overcome and this usually requires one to two years. The slight tilting of the feet accomplished by the wedge on the inner side of the shoe is sufficient to straighten the legs in most instances when continued long enough. In conjunction with this simple shoe correction, it is important that the child should be properly nourished but equally important that he should not be permitted to gain too much weight.

In the group of growing girls and boys, we find pronated feet very common and still find them associated with bowlegs and knock-knees as in the case of younger children. When the alignment of the legs and feet has been neglected during pre-school years, we have little opportunity to materially improve them during later growth even when corrective shoes and exercises are employed faithfully for several years. The feet, however, should be protected for their own sake.

A certain number of pronated feet seen among growing girls and boys, associated with shortening of the heel cord and contracture of the gastrocnemius muscle, can be overcome by stretching exercises together with certain corrections on the shoes. Weak leg muscles and loosely-formed mid-tarsal joints in the feet are responsible for another group of pronated feet during their early school years. Such cases require consistent exercises for the feet and legs and well-balanced shoes over a period of several years. The presence of an accessory scaphoid bone (pre-hallux) is responsible for a considerable number of very weak, painful feet in this group and these require suitable arch supports in the shoes or adequate correction on the outside of the shoes together with well regulated foot exercises for relief of pain and improvement in appearance. Relatively few obtain permanent correction by such measures. In most instances, it becomes necessary to do a corrective operation, removing the accessory bone and transplanting the posterior tibial tendon further beneath the foot in order to have it hold the arch properly.

Fragmentation of the epiphysis of the os calcis (apophysitis) results in a painful heel frequently seen among boys and relieved by rest or by elevation of heel and cutting out of the spur piece in the back of the shoe. Hollow feet or claw-feet with very high arches and prominent metatarsal heads begin to appear among the growing girls and boys. The etiology of this condition varies and in many instances is not known. Corrective shoes improve the gait of the individual and sometimes prevent the deformity from increasing. In spite of all measures many of these progress until suitable operative procedures are employed.

The treatment of foot disorders in growing girls

and boys is more difficult than in early childhood. While it is essential to have correct shoes properly fitted, emphasis should be laid on corrective exercises, the proper placement of the feet in walking; dances, games and sports that will develop the leg muscles that can and will support the arches.

Lastly, we come to consider the commoner foot defects among men and women. Flat feet, strained arches and metatarsalgia are the common complaints among men, but because they wear flat-heeled, strong shoes and keep their muscles in better training, they have fewer foot disorders than women. The strained arches and metatarsalgias that occur among men follow some change of occupation, a rapid gain in weight, or the use of some type of shoe not adapted to the individual needs of the patient. Frequently, the men who complain are those who have residual knock-knee or bowleg deformities retained from childhood.

Men pay less attention to the appearance of their shoes and seldom object to the use of extended heels, (Thomas heels), elevated on the inner side to overcome pronation and relieve strain on the ligaments supporting the arch; nor do they object, as a rule, to the use of a clumsy-looking, metatarsal bar running transversely across the sole of the shoe to relieve the stress of weight borne on the metatarsal heads. The correction of faulty habits of gait, exercises to strengthen certain groups of muscles, the use of contrast baths and massage to improve circulation, and instructions as to the proper types of shoes to be worn in connection with work and sports suffices to relieve most men of their complaints.

The commonest complaints that women make of their feet are referable to the balls of the feet and the toes. The wearing of high-heeled shoes which throw most of the weight forward on the metatarsal heads has much to do with their troubles. Their shoes often are fitted too narrow and too short. On the high heels the feet tends to slide forward into the narrow part of the shoe, the toes are cramped, pressure develops over the great toe joint and over the little toe, and, as a result, they develop bunions, hammer toes, calluses, corns and warts. While they are young and active with strong muscles and no excessive weight, many of them get by with very few complaints. After marriage and motherhood most of them gain weight, take less exercise and spend more time going about their household duties in flimsy bedroom slippers. Having acquired a short heel cord by wearing high heels and suddenly changing to flat heel slippers and carrying increased weight, they naturally develop acute strain of the ligaments supporting the arches and marked degrees of pronation.

Relief from their troubles calls for their using moderate heeled shoes with a strong, broad shank and a fairly thick, heavy sole. An oxford, embodying these characteristics together with a straight

inner border and sufficient width to accommodate the fore foot, bunion and all, becomes a first essential. A shoe meeting these specifications is, in the eyes of the average woman, a hideous shoe which will be worn only if she really is suffering. Additional corrections must be provided on the inside or the outside of the shoe, and because appearances mean much to women, the corrections are usually placed inside the shoe. Of the various types of supports which may be placed inside the shoe, one of the simplest and most satisfactory is a sponge rubber pad which may be shaped to fit the individual needs of a foot, tacked in place and covered with an inner sole. Some skill and experience is required to adjust these supports and to see that the shoes are properly fitted. In addition to these measures, such patients must be taught to walk properly, to exercise certain groups of muscles in their legs, to improve the circulation by contrast baths and massages, and to control their weight through dietary restrictions.

The various degrees of bunions and hammer-toes require operative corrections. Such operations properly done followed with careful supervision of shoes, training of the muscles, and correction of gait, yield most satisfactory results in the great majority of cases.

Among adult patients who complain of their feet, the examiner must be ever on his guard to detect the early indications of arthritis, gout, circulatory disorders and many less common disorders.

From this brief review, it will be seen that foot disorders are common to all ages, that prompt and efficient correction of these disorders makes for improvement of the patient's general condition throughout life, and that unless the patient as well as his feet are treated, the symptoms will not be relieved. All departments must cooperate in the care of such cases if the best results are to be obtained.

---

#### CHARITY HOSPITAL TUMOR CLINIC

New Orleans

At 8:30 p. m., on Monday, September 18, 1939, the Tumor Clinic staff of Charity Hospital held a symposium on "Cancer of the Skin" in Room 313 of the Louisiana State University Medical Center Building. An open invitation had been extended to the staff of the hospital and to the medical profession. For their interest and generous attendance we wish to express appreciation.

The meeting was opened by Dr. James T. Nix, the Director of the Clinic, who gave a short paper of introduction and a brief statistical report. This was followed by a paper on "Atypical Forms of Basal Cell Carcinoma" which was given by Dr. John Connell. Dr. Connell's paper was illustrated with a projection upon a screen of actual microscopic sections. Dr. Neal Owens then gave a

lantern slide illustrated talk on the "Surgical Treatment of Cancer of the Skin." The last paper on the program was one on the "Clinical Aspects of Cancer of the Skin." This was given by Dr. James K. Howles and was illustrated with many interesting slides.

Additional meetings of this type will be held by the Tumor Clinic staff. The members of the Charity Hospital visiting staff of all three units will be most cordially invited to attend.

The length of the papers presented at Monday's meeting precludes their complete publication in this issue, but they will appear in this Journal in subsequent issues. Dr. Nix's remarks at the opening of the meeting were as follows:

SURVEY OF SIX YEARS' WORK AT THE TUMOR CLINIC, CHARITY HOSPITAL OF LOUISIANA, AT NEW ORLEANS

SEPTEMBER, 1933-SEPTEMBER, 1939

We have arranged for tonight a symposium on cancer of the skin. This marks the beginning of the seventh year of operation of the Tumor Clinic. It seems appropriate, therefore, that we review briefly the work of the Clinic since its inception on September 7, 1933. Two of the speakers tonight, Dr. James K. Howles and Dr. John Connell, were with us at the very first meeting, when only two patients were seen.

The Clinic was intended to function as a diagnostic center for cases with tumors of all types; as a focus for integrating the knowledge of several specialists so that each patient would have the benefit of their combined skill; as a means of conducting prolonged observation of the cases treated, and as a teaching medium for undergraduates and residents. All these aims have been substantially attained.

There is no time for a detailed analysis of our clinical material but we would like to point out a few salient facts.

In all, 1,826 patients have been seen over the six year period. Of these, 630 cases have been discharged because they had no neoplasms or because they had benign tumors and were cured, 507 patients have died of cancer and 689 are alive and under observation. About 50 per cent of the patients seen at the Tumor Clinic have no cancer, that is, only 921 of 1,826 patients have proved malignant tumors. A glance at the statistics incorporated in this article shows that the lesions seen most frequently are cancers of the cervix, the skin, the breast and the oral cavity. A complete study of these groups will be made by members of the staff in the near future but the figures provided give us a cross-section of the material available at the Clinic.

You will note that we have relatively few cases in the five year column but of course it is still too soon to have a substantial number. In addition, the period of observation at the Clinic does not necessarily coincide with the period of sur-

vival after the completion of treatment. For instance, during the first year 355 patients were seen; of these, 197 had benign lesions; of the remainder 100 died before the fifth year and 58 survived at least five years. This gives a net salvage of 36.7 per cent for all cases, which is not as impressive as it sounds when one considers the number of skin and lip carcinomas. For the compilation of these figures we are indebted to Dr. Bjarne Pearson and to Miss Irma Johnson, secretary of the Clinic.

We have all along laid great stress on the necessity for keeping adequate records so that clinical research will be made possible. Thus only may we expect to shed some light on some aspects of the cancer puzzle. Therapeutic methods can be evaluated only in proportion to the completeness of the case histories. For illustration we have brought the record of the first patient seen at the Clinic. She is alive and doing well.

We have proved to our satisfaction that modern methods of biopsy are harmless if performed with proper safeguards. We are convinced that only by histologic examination can rational treatment be prescribed,—so much depends on knowledge of the histogenesis, the degree of malignancy and the radiosensitivity of tumors that only sections can disclose. On this subject the help of Drs. von Haam, Connell and Pearson is gratefully acknowledged.

We are indebted to the Charity Hospital visiting staff for its expressed confidence in the many consultations we have received, and to the Independent, Tulane and L. S. U. services of the hospital for the invaluable advice and assistance rendered by the individual members of their respective staffs in the functioning of this Clinic and in the treatment of patients. We express thanks for the full cooperation and collaboration of the Department of Dental Surgery.

We pay tribute to the efficiency of our social service workers, Misses Louise and Constance Meyer, Miss Frances Shannon and Miss Lenore Andries who have made possible the follow-up of our cases for a period of years in spite of serious handicaps, and also to the fidelity and efficient services rendered by Drs. Manuel Garcia and Cornelius Gorman, who have been unflinching in their attendance at the Clinic and in their solicitude for the welfare of the patients.

I believe the Clinic may claim credit for proving the efficiency of radiotherapy in some lesions. This field has been badly neglected until the organization of the Clinic, when Dr. John Miles became a member of the staff in the capacity of radiotherapist.

It is very satisfying to state that with the objectives of the Clinic realized, the soundness of the ideas on which it was conceived has been fully established and that we can confidently expect additional benefits from the work of the future.

The statistics which we have prepared follow:



CHARITY HOSPITAL TUMOR CLINIC  
 PERIOD OF OBSERVATION OF 670 LIVING PATIENTS  
 414 OF WHOM HAVE PROVED CANCER  
 September, 1933—September, 1939

	Total number	Less than one year	Less than two years	Less than three years	Less than four years	Less than five years	Five years or more		Total number	Less than one year	Less than two years	Less than three years	Less than four years	Less than five years	Five years or more
Cancer of skin.....	86	14	8	18	22	7	17	Medulloblastoma .....	1	1	.....	.....	.....	.....	.....
Melanoma .....	1	.....	.....	1	.....	.....	.....	Pituitary tumors .....	2	.....	.....	2	.....	.....	.....
Perithelioma .....	1	.....	.....	1	.....	.....	.....	Cancer of lip .....	27	5	4	4	4	4	6
Keloid .....	11	.....	.....	.....	.....	.....	.....	Benign lesions .....	8	.....	.....	.....	.....	.....	.....
Benign lesions of skin.....	17	.....	.....	.....	.....	.....	.....	Cancer of oral cavity.....	33	8	6	8	3	4	4
Cancer of breast .....	65	15	18	8	5	4	5	Tuberculosis of oral cavity..	2	.....	.....	.....	.....	.....	.....
Sarcoma .....	1	.....	.....	1	.....	.....	.....	Other benign lesions .....	28	.....	.....	.....	.....	.....	.....
Paget's disease .....	1	.....	.....	.....	.....	.....	1	Mixed tumors of salivary							
Benign lesions .....	54	.....	.....	.....	.....	.....	.....	gland .....	11	4	2	3	.....	1	1
Cancer of cervix .....	122	21	39	45	9	3	5	Cancer of antrum .....	3	1	1	1	.....	.....	.....
Benign lesions .....	63	.....	.....	.....	.....	.....	.....	Cancer of middle ear .....	1	.....	.....	.....	1	.....	.....
Cancer of fundus .....	7	.....	3	4	.....	.....	.....	Melanoma of choroid .....	2	.....	.....	.....	2	.....	.....
Cancer of ovary .....	9	3	3	2	.....	.....	1	Glioma retinae .....	2	1	.....	.....	.....	.....	1
Cancer of vulva .....	2	.....	1	1	.....	.....	.....	Cancer of cornea .....	1	1	.....	.....	.....	.....	.....
Benign lesions .....	3	.....	.....	.....	.....	.....	.....	Cancer of larynx .....	4	1	2	1	.....	.....	.....
Urethral caruncle .....	1	.....	.....	.....	.....	.....	.....	Cancer of thyroid .....	2	2	.....	.....	.....	.....	.....
Cancer of colon .....	2	1	.....	1	.....	.....	.....	Adenoma of thyroid .....	1	.....	.....	.....	.....	.....	.....
Cancer of rectum.....	3	1	1	1	.....	.....	.....	Metastatic cancer of neck...	2	.....	.....	2	.....	.....	.....
Hypernephroma .....	1	1	.....	.....	.....	.....	.....	Cancer of lung.....	4	3	.....	.....	.....	1	.....
Cancer of bladder .....	4	2	.....	1	1	.....	.....	Giant cell tumor of bone.....	1	.....	.....	.....	.....	1	.....
Cancer of penis .....	4	2	.....	1	.....	.....	1	Bone cyst .....	1	.....	.....	.....	1	.....	.....
Hodgkin's disease .....	7	1	3	1	1	1	.....	Chondroma and ostroma.....	3	.....	.....	1	2	.....	.....
Leukemia .....	3	1	2	.....	.....	.....	.....	Adenoma .....	3	.....	1	.....	.....	.....	2
Lymphosarcoma .....	3	.....	.....	2	.....	.....	1	Lipoma .....	2	.....	2	.....	.....	.....	.....
Reticulum cell sarcoma.....	1	.....	1	.....	.....	.....	.....	Hemangioma .....	11	.....	.....	.....	.....	.....	.....
Fibrosarcoma .....	3	1	.....	1	.....	.....	1	Angioma of muscle .....	1	.....	1	.....	.....	.....	.....
Liposarcoma .....	1	.....	.....	.....	.....	1	.....	Lymphangioma .....	1	.....	.....	.....	1	.....	.....
Myxosarcoma .....	4	.....	1	1	1	1	.....	Other benign tumors.....	9	.....	.....	.....	.....	.....	.....
Neurogenic sarcoma .....	1	.....	.....	1	.....	.....	.....	Undiagnosed .....	18	.....	.....	.....	.....	.....	.....
Neurofibroma .....	5	1	2	1	.....	.....	1								

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

- |  |   |
|--|---|
| <p>October 2. Board of Directors, Orleans Parish Medical Society, 8 p. m.<br/>                 Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.</p> <p>October 3. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.</p> <p>October 4. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.<br/>                 Hutchinson Memorial Clinic Staff, 8 p. m.<br/>                 Mercy Hospital Staff, 8 p. m.</p> <p>October 5. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.</p> <p>October 9. Orleans Parish Medical Society, 8 p. m.</p> | <p>October 10. Eye, Ear, Nose and Throat Club, 8 p. m.</p> <p>October 11. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.<br/>                 Touro Infirmary Staff, 8 p. m.</p> <p>October 12. New Orleans Hospital Council, Mercy Hospital, 8 p. m.</p> <p>October 16. Hotel Dieu Staff, 8 p. m.</p> <p>October 17. Charity Hospital Medical Staff, 8 p. m.</p> <p>October 18. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.<br/>                 Charity Hospital Surgical Staff, 8 p. m.</p> <p>October 19. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.</p> |
|--|---|

- October 20. I. C. R. R. Hospital Staff, 12 noon.  
New Orleans Dispensary for Women  
& Children Staff, 8 p. m.
- October 24. Baptist Hospital Staff, 8 p. m.
- October 25. Clinico-pathologic Conference, Char-  
ity Hospital and L. S. U. Medical  
Center, 2 p. m.  
French Hospital Staff, 8 p. m.
- October 26. Clinico-pathologic Conference, Touro  
Infirmary, 11:15 a. m. to 12:15 p. m.  
L. S. U. Faculty Club, 8 p. m.

During the months of July, August and Sep-  
tember the Society has been in summer recess.  
The Board of Directors held monthly meetings  
during this time, and any information they deemed  
important was sent to the membership by circular  
letters. The Society resumes its meetings Monday,  
October 9.

The August issue of the Bulletin contained the  
Roster and Telephone Directory of all members  
of the Society as of July 1, 1939. It is felt that,  
if each member keeps his copy on his desk, this  
book will be of assistance for quick reference.

The following doctors were elected to member-  
ship: ACTIVE: Drs. Owen F. Agee, Nathan Gold-  
stein, Melvin D. Steiner, Gilbert C. Tomskey,  
Joseph A. Vella and John C. Weed. INTERN:  
Drs. Harry G. Brown, Ralph J. Davis, Bert A.  
DeBord, Nevin W. Dodd, Richard A. Lucas, Joseph  
M. Montagnet, Jr., Thomas R. McLin, Julian G.  
Parker, and Julius A. Pennington.

Dr. L. R. DeBuys won the championship of the  
Orleans Parish Medical Society Golf Tournament  
recently held. Dr. Chester Fresh was runner-up  
and Dr. Dyer J. Farley won medalist honor.

Dr. Rigney D'Aunoy has resigned as Chief  
Pathologist of Charity Hospital and Dr. Emma  
Moss has been made Acting Pathologist.

Dr. B. I. Burns has been appointed Dean of the  
Louisiana State University Medical Center.

Dr. Edgar Hull has been appointed Head of the  
Department of Medicine, Louisiana State Uni-  
versity, School of Medicine.

Drs. A. J. Hockett and Roy W. Wright attended  
the meeting of the American Hospital Association  
in Toronto, Canada.

Dr. Nathan H. Polmer was named President-  
elect of the American Congress of Physical Ther-

apy at the conclusion of its eighteenth annual con-  
vention in New York City, September 2.

Drs. Rigney D'Aunoy and Béla Halpert attended  
the Third International Cancer Congress at At-  
lantic City, September 11-16, where they presented  
an exhibit on "Carcinoma of the Lung."

As a result of the balloting for officers and com-  
mitteemen of the United States contingent of the  
International Society of Gastroenterology, Dr. A.  
L. Levin was elected as one of the ten national  
committeemen. The International Congress on  
Gastroenterology will be held in London, England,  
July 14-20, 1940, at London University.

#### TREASURER'S REPORT

Actual book balance 7/31/39.....	\$3,946.80
August credits .....	325.47
Total credits .....	\$4,272.27
August expenditures .....	407.10
Actual book balance 8/31/39.....	\$3,865.17

#### LIBRARIAN'S REPORT

During July, 123 books were added to the Li-  
brary. Of these 33 were received by gift, 74 by  
binding, 7 by purchase and 9 from the New Or-  
leans Medical and Surgical Journal. Our records  
show that 807 volumes were loaned to physicians  
during July. An additional 159 books and journals  
were loaned to students, bringing the total for the  
month to 966. These figures do not include the  
constant use of material in the Reading Rooms.

#### NEW BOOKS

Schuster, J.: Zur Entdeckung der Insulinhock-  
therapie, 1938.

Mackee, G. M.: Cutaneous Cancer, 1937.

Bivin, G. D.: Pseudocyesis, 1937.

Anderson, D.: What it Means to be a Doctor,  
1939.

Harrison, T. R.: Failure of the Circulation, 1939.

Ferguson, A. B.: Roentgen Diagnosis, 1939.

Vaughan, W. T.: Practice of Allergy, 1939.

Thorington, J. M.: Refraction of the Human  
Eye, 1939.

Wechsler, I. S.: Textbook of Clinical Neurology,  
1939.

Myer, J. S.: Life and Letters of William Beau-  
mont, 1939.

Gilbert C. Anderson, M. D.,  
Secretary.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

## CALENDAR

## PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

## LAFOURCHE VALLEY MEDICAL NEWS

The regular quarterly meeting of the Lafourche Valley Medical Society was held at the Elks' home in Donaldsonville on September 20, 1939.

Scientific program was as follows: Dr. Max M. Green presented a paper entitled "The Present Day Status of the Management of Gonorrhoea"; Dr. George Haik's paper was entitled "Eye Problems of Interest to the General Practitioner."

An interesting movie film was shown by Dr. H. A. Folse.

Percy H. LeBlanc, M. D., Sec.

## AMERICAN PUBLIC HEALTH ASSOCIATION

The sixty-eighth annual meeting of the American Public Health Association will be held in Pittsburgh, Pa., October 15-20, 1939.

The forty-fourth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago, October 8-13, at the Palmer House. The Academy will again present its elaborate courses of instruction with more than 100 specialists as teachers, four afternoon programs of motion pictures and a scientific exhibit in addition to its formal scientific program.

## SOUTHERN TUBERCULOSIS CONFERENCE

The Southern Tuberculosis Conference will be held at the Francis Marion Hotel, Charleston, S. C., October 4-6, 1939.

## NEWS ITEMS

Surgeon Samuel J. Hall has been relieved from duty at Seattle, Washington, and ordered to proceed to the Marine Hospital at New Orleans for duty not later than September 15, 1939.

The many friends of Dr. Oswald E. Denney will be interested to know that he has been transferred from New York City to the Marine Hospital at Baltimore, Maryland.

Drs. Charles McVea and William S. Slaughter of Baton Rouge, have been made assistant physicians in charge of the health of the Louisiana State University.

The New York Academy of Medicine will give its twelfth graduate fortnight October 23-Novem-

ber 3, 1939. This year the program will be a symposium on the endocrine glands and their disorders. A full day and evening schedule has been arranged at the various hospitals, as well as at the Academy, conducted by local men and endocrinologists from this country and Canada. The registration fee is \$5.00. A program and detailed information may be obtained from the New York Academy of Medicine, 2 E. 103rd Street, New York City.

The fiftieth anniversary of the Medical School of the University of Minnesota will be celebrated October 12-14, 1939. A list of distinguished speakers will talk on the theme of some trends in medical practice with particular reference to chemistry in medicine.

The Journal is in receipt of the fourth edition of the booklet entitled "Baptism of the Infant and the Fetus." The author, the Rev. J. R. Bowen, Chaplain, St. Joseph Mercy Hospital, Dubuque, Iowa, wishes to call this booklet to the attention of the medical profession. It is for sale at twenty-five cents a copy. Sample copy may be seen in the office of the Journal.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending August 12, there were 181 deaths in the City of New Orleans as contrasted with 160 the previous week. By races the deaths were 100 in the white and 81 in the negro. There were 16 deaths in children under one year of age. The following week, which closed August 19, there was a marked diminution in the number of people dying in the city, 130 in all, divided 76 white and 54 negro, with 11 deaths in infants. The figures remained almost the same for the week closing August 26: The white deaths increased two and the negro deaths diminished five, so that there were three less deaths than in the previous week. Ten of these deaths were in infants. The report of the deaths in New Orleans for the week ending September 2 showed that there were 154 deaths, of which 91 were in the white and 63 in the negro population; there were 11 infant deaths. For the last week for which statistics are available, the week which terminated September 9, the 138 deaths were divided 84 white

and 54 negro, with a high incidence of deaths in small children, 24 of whom succumbed this particular week.

#### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the thirty-third week of the year, which ended August 19, syphilis as usual led all other reported diseases with 147 cases carded. Other diseases listed in numbers greater than ten were 39 cases of pulmonary tuberculosis, 37 of cancer, 35 of pneumonia, 20 of typhoid fever, 13 each of gonorrhoea and malaria and 10 of whooping cough. The typhoid fever cases were scattered throughout the state, no one parish reporting more than three except Orleans with six, five of which were imported. A case of poliomyelitis was reported from Avoyelles and a case of typhus fever from Jefferson Davis. For the next week which ended August 26, there were listed 88 cases of syphilis, 44 of cancer, a rather sharp increase in this usually static disease, 43 of pulmonary tuberculosis, 30 of pneumonia, 29 of typhoid fever, 14 of gonorrhoea, 11 of malaria and 10 of scarlet fever. Avoyelles must be having a mild epidemic of typhus fever; this time there were five cases reported as well as one from Acadia and Calcasieu parishes. For the next week, that of September 2, there were reported to the Bureau of Epidemiology 75 cases of syphilis, 48 of pulmonary tuberculosis, 37 of cancer, 25 of pneumonia, 23 of whooping cough, 20 of typhoid fever, 11 of malaria and 10 of gonorrhoea. Again there were five cases of typhus fever reported respectively from Acadia, Iberia (2), Orleans and Rapides parishes. A case of tularemia was found in West Baton Rouge. The week which closed September 9 showed a sharp increase in the cases of syphilis, 148 being reported; followed in order of frequency by 32 of cancer, 28 of pulmonary tuberculosis, 19 of gonorrhoea, 12 of pneumonia, and 10 each of malaria and typhoid fever. Union Parish with two cases was the only parish in the state to have more than one case of typhoid fever in this week. Poliomyelitis appeared in Sabine Parish, one case; typhus fever in Calcasieu, three cases, and Orleans, five cases, one of which was imported.

#### CORRESPONDENCE

Editor, New Orleans Medical and Surgical  
1430 Tulane Avenue  
New Orleans, Louisiana

Dear Sir:

We were very much interested in the editorial on shock treatment of schizophrenia, appearing in the New Orleans Medical and Surgical Journal for September. We certainly can agree that the treat-

ment should be given with caution. So far we have always recommended that it be given by a psychiatrist who is familiar with it, in an institution in which adequate care can be given during the treatment.

One point might be mentioned in connection with the results which have been reported. No doubt many reports were issued without sufficient follow-up, but in recent months some very excellent workers have told us that a high percentage of patients who were reported as having recovered or being greatly improved, have maintained their improvement even after many months. This fact was brought out by Dr. David C. Wilson of the University of Virginia at the recent psychiatric meeting in Chicago. In a group of thirty-seven patients suffering from manic-depressive psychoses, 89 per cent of which were discharged showing some degree of improvement, a five months' check-up showed that 76 per cent of them still maintained their improvement. Similar figures were given in regard to a group of seventeen patients with involuntal melancholia.

Sincerely yours,

Fred B. Western, M. D.

Bilhuber-Knoll Corp.

#### WOMAN'S AUXILIARY

##### Louisiana State Medical Society

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

#### SOUTHERN MEDICAL MEETING

The sixteenth annual meeting of the Woman's Auxiliary to the Southern Medical Association will be held in Memphis, Tenn., November 21-24, 1939.

Following are the names of officers and chairmen of committees of the Southern Auxiliary:

##### OFFICERS

President.....Mrs. W. K. West  
Oklahoma City, Okla.

- President-elect.....Mrs. C. P. Corn  
Greenville, S. C.
- First Vice-President.....Mrs. L. J. Moorman  
Oklahoma City, Okla.
- Second Vice-President.....Mrs. O. S. Cofer  
Atlanta, Ga.
- Recording Secretary.....Miss Grace Stroud  
Louisville, Ky.
- Corresponding Secretary.....Mrs. A. G. Gibbs  
Oklahoma City, Okla.
- Treasurer.....Mrs. K. W. Cosgrove  
Little Rock, Ark.
- Historian.....Mrs. W. W. Crawford  
Hattiesburg, Miss.
- Parliamentarian.....Mrs. Gordon Ira  
Jacksonville, Fla.

CHAIRMEN OF STANDING COMMITTEES

- Memorial.....Mrs. A. H. Stevens  
Fairmont, W. Va.
- Research.....Mrs. S. A. Collom, Sr.  
Texarkana, Ark.
- Jane Todd Crawford.....Mrs. Luther Bach  
Bellevue, Ky.
- Resolutions.....Mrs. A. A. Werner  
St. Louis, Mo.
- Budget.....Mrs. H. F. Garrison  
Jackson, Miss.
- Custodian of Records.....Mrs. S. C. McCoy  
Louisville, Ky.

Dear Members:

Let me take this opportunity to remind you of this coming Convention of the Southern Medical Association. Will you who are going to the convention please notify me as soon as possible, so that I may send you delegate or alternate card. We want Louisiana to have a full representation

at this meeting. Please send name and address to me, 2306 Camp Street, New Orleans, Louisiana.

Mrs. S. M. Blackshear, President,  
Louisiana State Auxiliary.

IBERVILLE PARISH

The Iberville Parish Auxiliary has continued its work through the summer; the major part of the program was the raising of two hundred dollars with which to donate a complete hospital bed to the Plaquemine Sanitarium.

This auxiliary is also working in close cooperation with the parish medical society in an effort to establish a fund for a new hospital in Plaquemine. The project is meeting with encouraging success.

Mrs. S. M. Blackshear, President of the State Auxiliary, was the guest of honor at the July meeting when the membership was entertained at lunch by Mrs. Rhodes Spedale, president; the regular business meeting followed. Mrs. Blackshear was accompanied by members of the Orleans Parish Auxiliary, Mrs. Charles Hume, Mrs. Wiley Bufington and Mrs. Louis Golden.

Mrs. Edward C. Melton, Sec.

We wish to make mention of the year book gotten out by the Ouachita Auxiliary, the most interesting feature of which is the printed program of each monthly meeting with date and hostesses. Included also are the names of state and parish officers, committee chairmen, in memoriam, aims and projects of the auxiliary, constitution and by-laws; there is a roster with names and telephone numbers of members. It is attractive, inexpensive, and complete; suitable for an auxiliary without too large a membership.

Respectfully submitted,

Mrs. Edgar Burns,

Press and Publicity Chairman.

BOOK REVIEWS

*Practice of Allergy:* By Warren T. Vaughan, M. D. St. Louis, The C. V. Mosby Company, 1939. Pp. 1082; illus. Price \$11.50.

When one considers the great breadth of the subject of allergy and the rapid advances which have been made in this field of medicine during the past two decades, it must be admitted that the author of this book has done a remarkably good job. Though this is a textbook of over a thousand pages, Dr. Vaughan follows very admirably the pattern set by the most popular of recent treatises on the subject of allergy. Containing three hundred and thirty-eight illustrations, the majority of which are excellent photographs made personally by the author, it affords a constant visualization of the text.

The introduction is excellent and stresses the fact that the student of allergy must be, first of all, a good doctor who must also interest himself in many fields other than medicine. Not found in other texts on this subject, this book contains a well written chapter concerning the distribution, characteristics and identification of molds and airborne fungi which may be a factor in allergy. Well illustrated, the reading of this chapter is quite interesting. A separate chapter devoted to the pharmacology of allergic diseases is complete and up to date.

Though written primarily for the physician particularly interested in the field of allergy, this book in the manner written, is highly recommended to the student and general practitioner.

NICHOLAS K. EDRINGTON, M. D.

*Trauma and Internal Disease:* By Frank W. Spicer, A. B., M. D., F. A. C. P. Philadelphia, J. B. Lippincott Co., 1939. Pp. 593. Price \$7.00.

This book is a brief compilation of the facts and opinions which constitute the present conception of the relationship of trauma to internal disease. Separate chapters are devoted to a consideration of the effects of trauma on each of the bodily organs and systems. A brief summary follows each section and a bibliography is appended to each chapter. Numerous case reports are included along with many quotations from the literature. The book serves to focus attention on the possible role of trauma in disease and should be useful in evaluating pathologic states following injury from both a medical and legal standpoint.

GRACE A. GOLDSMITH, M. D.

*Failure of the Circulation:* By Tinsley Randolph Harrison, M. D. Baltimore, The Williams & Wilkins Company, 1938. Pp. 501. Price \$4.50.

The purpose of this monograph, as stated in the preface to the first edition, is to present the points of view of the author with respect to heart disease as derived from studies of patients and experimental animals by the Vanderbilt group with which he is associated. The second edition maintains these objectives, presenting in a convincing fashion an analysis of the major syndromes and the functional basis of each.

The general arrangement of the volume has been changed in some respects. Harrison now generally uses the terms "forward failure" and "backward failure" rather than "hypokinetic syndrome" and "dyskinetic syndrome" because the latter phrases, although useful and logical, are unfamiliar to most readers. The first section has been rewritten and considerably expanded. It is concerned with forward failure, as exemplified by peripheral circulatory failure and acute cardiac failure, and contains a splendid discussion of the coronary circulation in relation to sudden death. There is a comprehensive review of the physiologic literature dealing with various aspects of angina. The latter condition is defined as one "in which there is pain (or discomfort) in or near the chest brought about by a relative oxygen deficiency of the myocardium and accompanied by a liability to sudden death." Coronary thrombosis is thus placed in a separate category as being due to an absolute and not relative oxygen deficiency in the cardiac muscle.

The second section is concerned with "backward failure," a term used synonymously with "congestive heart failure" and denoting passive engorgement, occurring as a result of cardiac disease, whether appearing in the pulmonary vascular bed, the systemic circuit, or in both of these areas. The dynamics, major and minor phenomena, prognosis and treatment of congestive heart failure

are analyzed in detail and there is a complete and stimulating discussion of dyspnea. The last three sections are devoted to the mixed types of circulatory failure, general circulatory disturbances without failure and a summary. There is an extensive bibliography.

The volume is heartily recommended to those interested in the physiologic approach and interpretation of heart failure. The author has deliberately devoted much more space to the researches of his colleagues and himself and, as he states, has attempted to judge controversial issues not by their orthodoxy, but rather by the evidence upon which they rest. The reader may, therefore, be aroused by some of the interpretations and perhaps feel that some of the issues have been oversimplified. He cannot fail, however, to be stimulated and to profit by the discussions.

H. S. MAYERSON, Ph. D.

*Text-Book of Clinical Neurology:* By Israel S. Wechsler, M. D. Philadelphia, W. B. Saunders Co., 1939. Pp. 844. Price \$7.00.

The field of neurology is tremendously comprehensive. During the past three or four years a number of advances have been made and progress requires that new data be carefully selected and precisely verified so that all which has been proved to be valid may be preserved as facts.

In the fourth edition of Dr. Wechsler's "Text-Book of Clinical Neurology," numerous changes, additions and deletions have been made. Revised concepts of neuritis cause it to be recognized as a neuropathy; Elsberg's small tests are detailed; petrositis is briefly mentioned. There appear remarks on the pre-motor syndrome and electroencephalography in relation to epilepsy. In general, syndromes are discussed which had been previously omitted or which have only recently become worthy of attention. Inasmuch as psychiatric material has been "left out" it seems odd that a chapter on "Psychometric Tests" is retained.

A unique and valuable feature of the book is the inclusion of an especially well written portion on "The Neuroses"; also, "Trauma and the Nervous System" is most satisfactorily dealt with. These sections are of great value in view of the ever increasing amount of neuropsychiatric medico-legal work.

Dr. Wechsler needs no introduction. The new edition of his book is polished, relevant and important—one of the most significant books on the topic that has appeared in years—and it covers the broad and intricate subject of neurology with admirable clarity and thoroughness.

Perhaps the reviewer can best sum up what he means to imply in five words—a preeminent book, excellently published.

C. P. MAY, M. D.

*Health Education of the Public:* By W. W. Bauer, B. S., M. D., and Thomas Hull, Ph. D. Philadelphia, W. B. Saunders Co., 1937. Pp. 227. Price \$2.50.

This compendium contains invaluable information for the use of anyone concerned with the spread of medical knowledge. Although this goes beyond the contention of the authors, the reviewer finds that the suggestions and descriptions of sources and materials for use in health education of the public are also of great value to physicians or anyone who has to deal with charts, slides, lay and professional organizations and many other media for the exchange of knowledge.

After an excellent discussion of health by means of definitions, there is an unnecessary attempt to define adult health education, unnecessary because we all know what is meant and because the reader is left with the conclusion that it really is education of adults in regard to health.

In an early chapter the danger of producing hypochondriacs by telling people too much is effectively and reasonably dealt with.

The concluding paragraphs of the chapter on objectives sum up the author's wise conclusion that all attempts to propagate medical or health knowledge must emanate from the medical profession; they are over charitable to the profession in its delinquency to date.

The chapters on source materials and their use should be read by all who talk, write or demonstrate health subjects to others. Doctors preparing scientific exhibits for medical meetings can avoid many pitfalls by noting the warnings about wrong methods of presentation and display.

The book ends in a correlated health propaganda program in so far as it makes use of the sources and materials presented. It is excellent. Doctors Bauer and Hull give in this book convincing evidence that only thoughtful and considered technics really get across to the public. It should be a warning to health educators that only wise methods should be used and the authors show the way to do it.

WILLIAM PERKINS, M. D.

*Clinical Diagnosis of Swellings:* By C. E. Corrigan, B. A., M. D., F. R. C. S. (Eng.). Baltimore, Williams & Wilkins Co., 1939. Pp. 313. Price \$4.00.

The author shows how the examination of a swelling can lead to a clinical diagnosis. While physical methods alone are discussed, the importance of the history and laboratory methods is repeatedly emphasized. The book starts with a general discussion of the physical attributes of swellings, and then this knowledge is applied to the study of inflammatory and neoplastic lesions. The author illustrates his discussions with examples chosen from all over the body.

Because of the tremendous field to be covered,

he falls into the obvious pitfalls of cursory descriptions. His chapter on osteogenic sarcoma, for example, suffers by comparison with that found in Cutler and Buschke's recent book on cancer. Indeed it is only in a few chapters such as those on ulcers, lymph glands, and inguino-scrotal swellings that the reader is not left with a feeling of marked frustration. This is regrettable since the entire book reflects the personal experience of the author, and his style is graceful. The reader's interest is often enlivened by literary gems such as this sentence: "Incidentally the crushing of breasts in laundry rollers is by no means confined to the limbo of blustering ribaldry."

Unusually effective line drawings add greatly to the text. This book is therefore interesting, but can hardly be recommended as a thorough medical text.

DANIEL M. KINGSLEY, M. D.

*Short Stature and Height Increase:* By C. J. Gering. New York, Harvest House, 1939. Pp. 159. Price \$3.00.

The problem of short stature is a serious one for thousands of persons. This applies more especially to the male sex; the short, small women in general look upon a petite figure as an asset rather than a liability,—so long as it does not tend to expand unduly. Men, on the other hand, often regard themselves as being the victims of a bitter practical joke on the part of Nature and unless they can adapt themselves to the inevitable with good grace they may become despondent.

To those who feel the statural discrepancy between themselves and a large proportion of masculine humanity, this book is intended to bring a certain modicum of hope and comfort. It appears to succeed fairly well in its objective, even though hampered by brevity and a tendency to indulge in placations and generalities.

The subject matter is divided into 18 chapters of which those dealing with exercise, posture, clothes, stature and psychologic aids make the best impression, as conveying sound advice and laudable suggestions. Discussions of heredity which lead nowhere and of endocrine dyscrasias that at best are controversial, can hardly impress the lay reader, but the description of exercises intended to strengthen muscles and improve posture are clear and simple enough for any to follow. When one has the determination at least to try and the persistence to carry out these gymnastic procedures for a long period of time, even though he does not add a cubit or even a fraction thereof to his height, he will find them profitable.

Then the camouflaging of deficient stature with the proper kind of clothes, notably the striped variety, and the avoidance of putting himself in positions with respect to environment which emphasize his minuteness, will, according to the author, prevent the diminutive man from attract-

ing what to him may be unpleasant attention.

The best chapter is the last, on the psychologic attitude to be developed, which will enable the small person to forget, at least temporarily, his handicap. The advice is eminently sound and more than consoling because it is factual. The small man has great advantages over the larger in so many ways that providing he develops a knowledge of them he will feel no disadvantage whatever. First of all, the little man occupies less space, and can fit in where the big man would not at all or only with discomfort. Second, he is more active as a rule than a large one, not infrequently both with body and tongue. He usually has a sunnier disposition and makes friends with equal or greater readiness. Finally, there is a sop thrown to his pride when he is urged to recall that many of the great men who have swayed the destiny of mankind have been far below the normal stature.

This book is for the laity and the verbiage is in consonance with the objective. The style is clear and lucid and the text, except for the strictures noted, is eminently satisfactory.

L. C. SCOTT, M. D.

*The Vaginal Diaphragm: Its Fitting and Use in Contraceptive Technique:* By LeMon Clark, M. S., M. D. St. Louis, C. V. Mosby Co., 1939. Pp. 107. Price \$2.00.

This is a little monograph of 106 pages, describing in detail the diaphragm method of contraception. The different types are described, and the anatomic and physiologic variations to be considered in selecting the proper diaphragm are discussed. The technic of insertion and the method of instruction of the patient are carefully described.

It is a useful little book for the physician desiring to familiarize himself with this method of contraception. It could be perused with interest by intelligent patients, who could thereby master the technic more thoroughly.

E. L. KING, M. D.

*End-Results in the Treatment of Gastric Cancer: An Analytical Study and Statistical Survey of Sixty Years of Surgical Treatment:* By Edward M. Livingston, B. Sc., M. D., and George T. Pack, B. Sc., M. D., F. A. C. S. New York and London, Paul B. Hoeber, Inc., 1939. Pp. 179. Price \$3.00.

Bowman C. Crowell of the American College of Surgeons says in his foreword that this book represents the third milestone on the road in the therapy of gastric carcinoma, the first having been erected by Billroth and the second by Welch. Péan in 1879 and Rydygier in 1880 had each performed a gastrectomy before Theodore Billroth, in 1881, undertook the operation, but their patients died within five days and twelve hours, respectively,

and Billroth's patient not only survived operation but lived for almost five months.

So much for the first milestone. When Welch, who erected the second, made a survey of the world literature in 1885, he found only 37 gastric resections recorded, with 27 operative deaths, and he found also that none of the 10 surviving patients had lived for more than 18 months. It is small wonder that he wrote gloomily that the operation was applicable only to the rarest case, offered only a faint glimmer of hope, was attended with a prohibitive mortality, and never cured permanently. Welch also listed six reasons why gastrectomy was not applicable to the average case of carcinoma of the stomach: distant metastases; a location unfavorable for removal; too extensive a growth; widespread adhesions; the extreme debility of the patient; and the necessity for a specially trained surgical team.

An unfortunate number of these reasons still exist, but Livingston and Pack have been able to present a somewhat more hopeful outlook on what is still an essentially tragic picture. Their material, which is reprinted from their "The Treatment of Cancer and Allied Diseases" by 142 international authors, was collected in this convenient form to determine three points: (1) The incidence of resectable carcinomas of the stomach; (2) the risks attached to gastrectomy; (3) the effectiveness of successful gastrectomy. Each of these points is settled by absolute statistical data.

The average resectability of carcinoma of the stomach is 18.7 per cent, which is to be compared with Billroth's original estimate of 1 in every 200 cases. The range is from 0 to 36.4 per cent. The latter report is by Rossi of Milan, and the highest American resectability is the 22.6 per cent reported from The Mayo Clinic.

The average mortality of gastric resection is 17.74 per cent, and the range from 5.0 to 52.6 per cent. The mortality was halved during the last years of the study.

The best ten-year cures are reported by Harms of Germany and Balfour of The Mayo Clinic, 22.9 and 22 per cent respectively. One-third of the patients who survive operations are living at the end of three years, one-fourth at the end of five, and one-fifth at the end of ten. When there was no lymph node involvement, 50 per cent of five-year cures occurred, and if malignancy was classified as Group I or II, the percentage of five-year cures rose to 55 per cent.

Approximately 3,000 gastric resections were reported from clinics in the United States, which is approximately one-fifth of the more than 14,000 reported in the world literature since 1881. The figure is also less than 0.2 per cent of the million and a half deaths which have occurred from gastric carcinoma in this country since the same date. Only three American authors have reported more than 100 cases: 1968 by several surgeons from The



Mayo Clinic, 189 by Crile from the Cleveland Clinic, and 145 by Geschickter from Johns Hopkins Hospital.

The authors point out that excision by the casual rather than by the specially trained surgeon almost doubles the mortality. It is interesting that the figures in Welch's study exactly bear out this conclusion: The mortality of Billroth and his pupils, Czerny and Wolfler, was 38.9 per cent, five of 13 cases, while that of 24 surgeons who performed one operation each was 88 per cent. The correction of this situation is largely an institutional responsibility and depends upon case concentration and the training of special surgical teams.

Carcinoma of the stomach, say the authors, is a surgical disease, but the percentage of operability is the ultimate responsibility of medical men. A medical service with a high proportion of referred surgical cases will achieve better results with the cooperation of inferior surgeons than will a service which has more expert surgical cooperation but a lower percentage of operability.

Crowell in his foreword places the incidence of resectable cancers of the stomach in the United States each year at approximately 10,000, and notes that less than 15,000 have been recorded in the world literature in more than half a century. Furthermore, necropsies show that 20 per cent of patients who die of carcinoma of the stomach have no evidence of distant metastases, which, being interpreted, means the loss of at least 20 per cent of the opportunities for resection. As the authors put it, no institution in which the operability rates for gastric carcinoma fall below 20 to 40 per cent or the incidence of resections below 15 to 20 per cent has identified its full quota of resectable cancers. These figures have further significance when it is recalled, as the authors emphasize, that one-third of all malignant tumors are located in the stomach, and that surgical excision is the only known method of cure.

The book is abundantly illustrated with charts and graphs, from which the reader, if he so desires, may figure out his own conclusions. It repays thoughtful reading. It deserves, also, wide quotation, and it is unfortunate that the publishers' prohibition, "This book or any part thereof may not be reproduced in any form without the written permission of the publishers," is likely to limit its usefulness, and, for that matter, make such a review as this a violation of their ruling.

The 35 resections for gastric carcinoma reported from Charity Hospital in 1933\* form part of the material included in this volume, and have the regrettable distinction of furnishing the next to the highest mortality (51.4 per cent) reported from any clinic. This rate is exceeded only by Ought-

son's report from New Haven, in which the mortality was 52.6 per cent.

FREDERICK FITZHERBERT BOYCE, M. D.

*Standard Bodyparts Adjustment Guide: Traumatic Injuries, Medical Fees, Evaluations:* Chicago, Insurance Statistical Service of North America. Price \$8.00, including ten years revision service.

This volume contains a number of excellent anatomic charts which will serve to explain technical terms relating to the bones, muscles, circulatory system and nervous injuries. The chapters on occupational diseases, with detailed descriptions of various poisons encountered by workers, are concise and complete.

The Compensation Laws of all of the States are summarized in such a manner as to be readily comprehended by a layman. The final few pages on medical terminology are apparently not chosen with the discrimination that one might wish. For instance, the definition is given of archocele and archoptosis as well as dermanaplasty and dermalaxia. These words will hardly be of value in dealing with the problems of industrial surgery, but a number of terms which are in common usage are also defined.

The work is a conscientious effort to make things clear for the claim adjuster and to establish an understanding between him and the physician. The reviewer thinks the author has succeeded in attaining this end. Doubtless the revision service will add new matter as well as apprise the readers of changes in the Compensation Laws. Louisiana has no Industrial Commission or Board, hence the problems that arise in traumatic surgery frequently are settled in court. The author is probably more familiar with the administration of the Acts in states in which most cases are referred to a body of skilled observers.

EDWARD A. FICKLEN, M. D.

*New and Nonofficial Remedies, 1939: As Accepted by the Council on Pharmacy and Chemistry of The American Medical Association.* Chicago, A. M. A. Press. Pp. 617. Price \$1.50.

With this volume is sent a copy of the reports of the Council on Pharmacy and Chemistry which enhances the value as it explains why certain drugs or preparations have been omitted or included in this new 1939 edition of *New and Nonofficial Remedies*. This latter book is too well known to require a detailed account of its contents. Suffice it here to say that it has undergone its usual complete and thorough revision. In the preface are listed the articles that have been omitted either because they conflict with the rules of Council recognition of articles, or because the distributors have not demonstrated their continued eligibility, or because they have been taken off the market. This is quite a group. In the preface also are listed the revisions that have been made

\*Maes, U., Boyce, F. F., and McFetridge, E. M.: The tragedy of gastric carcinoma; a study of 200 surgical cases, *Ann. Surg.* 98:619, 1933.

and a very considerable number of remedies are included. A statement of the composition, strength, physical qualities and so on for an additional number of remedial and curative preparations has been made.

It seems utterly ridiculous to point out to the medical profession the advantages of using only chemical, galenic and biologic pharmaceuticals which have been Council recommended. Only by using these preparations can the standards of purity be maintained. The knowledge of the composition, the absence of objectionable names, and other Council requirements, will insure the doctor reliable and potent remedies.

J. H. MUSSER, M. D.

*The Diseases of the Nose and Throat:* By Charles J. Imperatori, M. D., F. A. C. S., and Herman J. Burman, M. D., F. A. C. S. Philadelphia, J. B. Lippincott Co., 1939. Pp. 726. Price \$7.00.

The publication of the second edition of this textbook so soon after the first attests its popularity. The arrangement of the material is somewhat different from that of the orthodox textbook. Symptoms, diagnosis and treatment are considered first, and the pathology and causation of the diseases under consideration placed at the end of each discussion. This text, while including all phases of otolaryngology, also includes the most recent advances in this particular phase of work.

The chapter on the uses and toxicity of cocaine serves to impress upon the student the dangers of this drug. A chapter is devoted to physical therapy and irradiation pertaining to otolaryngology. All phases of otolaryngology are presented in a brief and concise manner.

For the student and general practitioner this is an excellent volume which is easily read.

FRANCIS E. LEJEUNE, M. D.

*Menstrual Disorders — Pathology, Diagnosis and Treatment:* By C. Frederic Fluhmann, B. A., M. D., C. M. Philadelphia, W. B. Saunders Company, 1939. Pp. 329. Price \$5.00.

This short monograph, 315 pages in length, discusses the currently accepted theory of menstruation, its variations, normal and pathologic, and the treatment indicated.

The author first briefly reviews the various ideas and superstitions that have preceded scientific explanation of this phenomenon, mentioning the significant observations which lead up to the present day endocrine theory of menstruation. Next, the normal physiologic changes are considered with a discussion of the normal variations in the time of onset of the menses, the possible fluctuations in cycles of healthy women, the gross and histologic changes that occur during the cycle, the time of ovulation, and the concurrent secondary sexual manifestations. A brief statement of the

comparative physiology of the estrous cycle of lower animals is given to show the development of the menstrual phenomenon in primates. The sex hormones are briefly but fully discussed as to experimental and physiologic action, and as to clinical usage.

The author has devised a clear and comprehensive classification of menstrual disorders which can be easily understood and grasped by students and practitioners not familiar with current developments in this field. The symptomatology is carefully correlated with the endometrial and ovarian changes, as well as with hormonal variations of the various disorders. Experimental research is frequently mentioned to support the author's contentions. The climacteric is dealt with in a similar manner.

The differential diagnosis of the disorders mentioned can be easily made, as the author indicates, and the treatment of each type is set forth. The author does much to clarify the use of endocrine products in this field. Photomicrographs are abundant and well selected.

This short volume is excellent in that it clearly and practically presents one of the most puzzling of Nature's phenomena in a manner which is certain to give the reader a better understanding. This volume should be read by all students and practitioners who treat women of any age and is especially valuable to those requiring gynecologic training.

JOHN C. WEED, M. D.

#### PUBLICATIONS RECEIVED

F. A. Davis Company, Philadelphia: *Anatomy and Physiology* by Frederic T. Jung, B. S., Ph. D., M. D., Anna R. Benjamin, B. A., M. D., and Elizabeth C. Earle, B. A., R. N. *Practical Obstetrics* by P. Brooke Bland, M. D., and Thaddeus L. Montgomery, M. D.

Lea & Febiger, Philadelphia: *Nitrous Oxide-Oxygen Anesthesia* by F. W. Clement, M. D. *The Rectum and Colon* by E. Parker Hayden, M. D., F. A. C. S. *A Synopsis of Regional Anatomy* by T. B. Johnston, M. D.

J. B. Lippincott Company, Philadelphia: *The New International Clinics*, Vol. III, New Series Two, 1939, edited by George Morris Piersol, M. D.

The C. V. Mosby Company, St. Louis: *Diseases of the Skin* by Richard L. Sutton, M. D., LL. D., F. R. S. (Edin.), and Richard L. Sutton, Jr., A. M., M. D., L. R. C. P. (Edin.).

Rockefeller Foundation, New York City: *International Health Division Annual Report*, 1938.

The Williams & Wilkins Company, Baltimore: *Asthma* by Frank Coke, F. R. C. S., with the collaboration of Harry Coke, M. R. C. S., L. R. C. P.

The Year Book Publishers, Chicago: *Office Gynecology* by J. B. Greenhill, B. S., M. D., F. A. C. S.

# New Orleans Medical

and

# Surgical Journal

Vol. 92

NOVEMBER, 1939

No. 5

## CARCINOMA OF THE UTERUS\*

JAMES C. MASSON, M. D.†

ROCHESTER, MINN.

In spite of more efficient methods of treating cancer than formerly were available, and in spite of extensive educational programs to help the medical profession and the laity recognize the early signs of this disease, we in the United States are confronted with the appalling truth that one death out of every seventeen is from cancer. Statistics also show that more women die as the result of cancer of the uterus today than previously. According to Hoffman, in the United States more than 13,000 women die annually from cancer of the uterus.

At present, the increase in the number of deaths from cancer of the uterus is real, not apparent. Some authors have suggested that this increase is the result of increased accuracy of diagnosis. This does not seem likely as the symptoms of advanced cancer of the uterus could hardly be confused with those of any other disease. One reason for the increased incidence of deaths from this cause, of course, is preventive medicine and higher standards of living, as the result of which more people live to the cancer age. Furthermore, there is ample proof that negroes in this country, who rarely had this disease sixty years ago, now have it almost as frequently as white women.

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†From the Division of Surgery, The Mayo Clinic, Rochester, Minn.

Recent statistics show that cancer develops in the uterus more frequently than in any other organ or part of the female body. Of 4,407 cases of cancer of the uterus observed at The Mayo Clinic from 1910 to 1938 inclusive, 3,273 were primary in the cervix and 1,134 were in the uterine body. Of this number, 3,097 women with cervical cancers and 1,122 women with primary cancers in the body of the uterus received treatment at The Mayo Clinic. The ratio of carcinoma of the cervix to carcinoma of the uterine body in this series is as 2.9 to 1. Since indications for treatment vary with the site of the primary growth, as well as with the extent of the disease and its degree of malignancy, carcinoma of the cervix and of the uterine body must be considered separately (tables 1, 2 and 3). Tables 1 and 2 show hospital mortality in treated cases of carcinoma of the cervix

TABLE 1  
SQUAMOUS-CELL EPITHELIOMA, UTERINE CERVIX  
1910-1938

Type of treatment at clinic	Patients	Hospital Deaths	
		Number	Per cent
Total abdominal hysterectomy....	345	11	3.2
Vaginal hysterectomy .....	93	2	2.2
Irradiation without hysterectomy at this clinic.....	2306	26	1.1
Total treated cases.....	2744	39	1.4

TABLE 2  
ADENOCARCINOMA, UTERINE CERVIX  
1910-1938

Type of treatment at clinic	Patients	Hospital Deaths	
		Number	Per cent
Total abdominal hysterectomy.....	43	4	9.3
Vaginal hysterectomy .....	13	0	
Irradiation without hysterectomy at this clinic.....	120	2	1.7
Total treated cases.....	176	6	3.4

TABLE 3  
CARCINOMA, FUNDUS OF UTERUS  
1910-1938

Type of treatment at clinic	Patients	Hospital Deaths	
		Number	Per cent
Total abdominal hysterectomy....	690	31	4.5
Vaginal hysterectomy .....	124	4	3.2
Subtotal abdominal hysterectomy	65	6	9.2
Irradiation without hysterectomy at this clinic .....	343	5	1.5
Total treated cases.....	1222	46	3.8

from 1910 to 1938, inclusive. Table 3 shows hospital mortality in treated cases of carcinoma of the corpus uteri from 1910 to 1938, inclusive. We must ever keep in mind, however, that many of the patients in whom irradiation alone was used were hopelessly inoperable and alleviation of symptoms was all that could be hoped for from the start. Some of the cases, also, in which hysterectomy was performed showed extensive growths with peritoneal involvement at the time of the operation and with our present knowledge would now be considered inoperable.

Most of the 65 women on whom subtotal abdominal hysterectomy was done probably now would be treated by irradiation alone. Two of the deaths were due to diabetic coma. They occurred in patients on whom operation was performed before the introduction of insulin.

#### POSSIBLE ETIOLOGY

The greatest difficulty in efficient treatment, and especially in the prophylactic treatment, of cancer is a lack of knowledge of its etiology. It is known that heredity has a definite influence; at least a susceptibility or tendency to the disease is transmitted. It is also known that chronic irritation in susceptible people is often a predisposing factor. In the cervix, chronic infection or stricture probably plays an important part. While it is impossible to prove Cohnheim's hypothesis that all cancers start from embryonic rests of epithelial cells, the hypothesis is nevertheless generally accepted as it seems logical and cannot be disproved. All cancers, in fact all malignant tumors, are made up of more or less normal cells in various states of development and they differ from those in

other bodily tissue only in that they grow without apparent control and at the expense of normal tissues. Furthermore, cells from a primary growth on being transported to other sites by lymph, blood stream, or by ingrafting into an open wound, will continue to grow in a manner similar to that of the parent growth.

#### GRADE OF MALIGNANCY

If the presence of cancer is once accurately diagnosed by examination of a microscopic section, permanent cure can be obtained only by radical and efficient treatment. The type of treatment and the ultimate result of such treatment will depend not only on the extent of the disease, but also in a large measure on the grade of malignancy present, as suggested by Broders.<sup>2</sup> Broders' classification, which takes into consideration the amount of differentiation of the cells in the active, growing portion of the tumor, is of great prognostic value. In a tumor of grade I, there is little departure from the normal type of adult cell and, as a result, such tumors are of a low degree of malignancy. Tumors of grades II and III show less differentiation and those of grade IV show marked differentiation and represent the most active type of malignant disease. In spite of the fact that some pathologists do not place much value on the grading of malignant tissue and contend that sections from different parts of a single growth will suggest different degrees of malignancy, it has been said that tissue taken at different times may show various percentages of differentiation of the cells. There is no doubt that changes do take place and various factors like infection, degeneration and so forth influence the microscopic picture. After a trial in a very large series of cases, however, we are satisfied that the method is of real prognostic value and we rely on it a great deal. There is no doubt that the training and personal equation of the pathologist are most important in evaluating the method.

Tables 4, 5 and 6 show a constant decrease in the number of patients who sur-

vive five or more years as the degree of malignancy increases. The classification of Schmitz, which takes into account the amount of local involvement, has been accepted by many gynecologists; it is a useful but by no means accurate method of

TABLE 4  
CARCINOMA, FUNDUS OF UTERUS  
SURVIVAL RATES, ACCORDING TO GRADE OF MALIGNANCY

Grade	Patients treated*	Patients traced	Lived 5 or more years after treatment		Lived 10 or more years after treatment			
			Patients	Percentage of traced patients	Patients	Percentage of traced patients		
I .....	59	57	45	78.9	20	19	17	89.5
II .....	149	142	82	57.7	52	49	21	42.9
III .....	35	35	15	42.9	14	13	6	46.2
IV .....	46	44	14	31.8	23	23	4	17.4
Not graded .....	573	562	304	54.1	538	522	229	43.9
Total .....	862	840	460	54.8	647	626	277	44.2

\*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

TABLE 5  
SQUAMOUS-CELL EPITHELIOMA, UTERINE CERVIX  
SURVIVAL RATES ACCORDING TO GRADE OF MALIGNANCY

Grade	Patients treated*	Patients traced	Lived 5 or more years after treatment		Lived 10 or more years after treatment			
			Patients	Percentage of traced patients	Patients	Percentage of traced patients		
I .....	5	5	3	60.0	1	1	0	0
II .....	195	190	78	41.1	126	119	32	26.9
III .....	699	678	257	37.9	452	435	111	25.5
IV .....	528	511	172	33.7	372	354	87	24.6
Not graded .....	1016	988	202	20.4	941	906	138	15.2
Total .....	2443	2372	712	30.0	1892	1815	368	20.3

\*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

TABLE 6  
ADENOCARCINOMA, UTERINE CERVIX  
SURVIVAL RATES ACCORDING TO GRADE OF MALIGNANCY

Grade	Patients treated*	Patients traced	Lived 5 or more years after treatment		Lived 10 or more years after treatment			
			Patients	Percentage of traced patients	Patients	Percentage of traced patients		
I .....	15	15	12	80.0	5	5	3	60.0
II .....	47	47	18	38.3	29	27	6	22.2
III .....	24	24	7	29.2	15	14	3	21.4
IV .....	12	12	3	25.0	5	5	1	20.0
Not graded .....	34	34	15	44.1	32	31	11	35.5
Total .....	132	132	55	41.7	86	82	24	29.3

\*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

tabulating cases. According to this classification apparently early lesions are grouped in stage I; stages II and III are comprised of more advanced lesions and stage IV represents the most advanced lesions without hope of successful treatment. We must not be misled, however, by fixation or infiltration in the broad ligaments, as this may be the result of a coexisting inflammatory disease or endometriosis. The preoperative value of this method of classification is much greater in cases of cancer of the cervix than in those of malignancy of the fundus uteri.

The extent of the local growth is no doubt of great importance from a prognostic standpoint and as an indication for treatment, but it does not represent as good a guide to the ultimate outcome as the histologic appearance of the predominant cells. Experience has shown that the greater the differentiation or the more the cells of a tumor approach the normal histologic structure of the part the greater the resistance to radiotherapy. For such tumors radical surgical removal gives the best results. Highly malignant tumors, however, with marked cellular differentiation respond

more favorably to both roentgen rays and radium therapy and except in a very early stage are difficult to cure by surgical measures alone.

Cancer developing from the squamous-cell epithelium of the cervix presents a different histologic picture and carries a graver prognosis than cancer developing from the cylindrical gland-bearing cells that line the cervical canal. The former growths are known as "squamous-cell carcinomas," "epitheliomas" and "epidermoid cancers," and they constitute more than 90 per cent of all cervical cancers. Those developing from cylindrical cells are called "adenocarcinoma" and in this series they constituted 5.12 per cent of cervical cancers. The case histories of 3,437 patients who had a diagnosis of cancer of the uterus made at The Mayo Clinic between January 1, 1910 and December 31, 1933 were reviewed. In this series there were 2,443 (71 per cent) squamous-cell epitheliomas of the cervix; 132 (3.5 per cent) adenocarcinomas of the cervix and 862 (25.2 per cent) adenocarcinomas of the corpus uteri. The results after treatment are shown in tables 7, 8 and 9.

TABLE 7  
SQUAMOUS-CELL EPITHELIOMA, UTERINE CERVIX  
SURVIVAL RATES, ACCORDING TO OPERATION AND IRRADIATION

Treatment	Patients treated*	Hospital deaths, %	Patients traced†	Lived 5 or more years after treatment		Lived 10 or more years after treatment	
				Patients	Percentage of traced patients	Patients traced	Percentage of traced patients
Total abdominal hysterectomy with irradiation .....	165‡	1.2	161	92	57.1	132	43.4
Total abdominal hysterectomy without irradiation .....	133§	4.5	129	44	34.1	124§	26.9
Vaginal hysterectomy with irradiation .....	32	0	31	15	48.4	30	33.3
Vaginal hysterectomy without irradiation .....	60	3.3	60	28	46.7	58	31.6
Irradiation without hysterectomy at this clinic .....	1893	1.0	1834	521	28.4	1447	17.7

Operation for diagnosis only (160 cases) not included.

\*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

†Includes 13 Wertheim hysterectomies.

‡Includes 13 Wertheim hysterectomies with one hospital death.

§Includes eight Wertheim hysterectomies.

TABLE 8  
ADENOCARCINOMA, UTERINE CERVIX  
SURVIVAL RATES, ACCORDING TO OPERATION AND IRRADIATION

Treatment	Patients treated*	Hospital deaths, %	Lived 5 or more years after treatment			Lived 10 or more years after treatment				
			Patients traced	Patients	Percentage of traced patients	Patients traced	Patients	Percentage of traced patients		
Total abdominal hysterectomy with irradiation .....	13	0	13	8	61.5	9	0	8	4	50.0
Total abdominal hysterectomy without irradiation .....	12	16.6	12†	9	75.0	7	28.6	7	3	42.9
Vaginal hysterectomy with irradiation .....	7	0	7	6	85.7	7	0	7	5	71.4
Vaginal hysterectomy without irradiation .....	6	0	6	3	50.0	3	0	4	2	50.0
Irradiation without hysterectomy at this clinic .....	89	1.1	89	28	31.5	54	1.9	54	15	27.8

\*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.  
†Includes one Wertheim hysterectomy.

TABLE 9  
CARCINOMA, FUNDUS OF UTERUS  
SURVIVAL RATES, ACCORDING TO OPERATION AND IRRADIATION

Treatment	Patients treated*	Hospital deaths, %	Lived 5 or more years after treatment			Lived 10 or more years after treatment				
			Patients traced	Patients	Percentage of traced patients	Patients traced	Patients	Percentage of traced patients		
Total abdominal hysterectomy with irradiation .....	194	1.0	191	129	67.5	122	0	121	74	61.2
Total abdominal hysterectomy without irradiation .....	306	8.5	296	197	66.6	236	7.6	230	125	54.5
Vaginal hysterectomy with irradiation .....	22	0	22	14	63.6	21	0	20	9	45.0
Vaginal hysterectomy without irradiation .....	61	4.9	59	35	59.3	56	5.4	54	28	51.9
Irradiation without hysterectomy at this clinic .....	230	0.9	227	61	26.9	171	0.6	167	26	15.6

\*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

If progress is to be made in the treatment of carcinoma of the uterine cervix it will be the result of specific treatment not known today and it will consist of prophylactic treatment against predisposing factors rather than active treatment of the condition once it is well established. The early signs of cancer of the cervix are uniformly listed as irregular spotting, a foul discharge of a watery nature, and pain. Unfortunately these are generally the signs of a well-advanced growth, but it is surpris-

ing how frequently one sees extensive involvement without either bleeding, foul leukorrhoea or pain.

TREATMENT

In considering prophylactic treatment we must consider of first importance chronic irritation from infection. It has long been considered that parity has an important bearing on cervical cancer, although statistics show that practically the same proportion of nulliparous women in the cancer

age have cervical cancers as those who have had children. The important consideration, therefore, is not the treatment of the traumatic lesions of childbirth alone but the treatment of cervical infections. It has long been recognized, however, that lacerations predispose to endocervicitis and strictures; therefore, repair of such lacerations is always indicated at an early date.

Once cancer of the cervix is diagnosed the serious matter of advising treatment must be considered. The only methods available are radiotherapy and operation. Colloids of some of the heavy metals have been advised, and there is no doubt that these have a more destructive action on malignant tissue than on normal cells; however, the curative dose is too close to the lethal dose to make their use satisfactory or dependable. The local application of caustics and extensive destruction of the local growth by cauterization are not practical, and are responsible for the formation of many fistulas and for so few cures. None of the specific treatments that have been advised so far are of any value. Much experimentation along this line is being done at present and it is hoped that some day a satisfactory serum will be developed.

After a critical analysis of the results obtained by either the Wertheim type of abdominal hysterectomy or by Schauta vaginal hysterectomy, taking into consideration the operative mortality rates and the expectation of life following operation as recorded by men both in this country and abroad, it is not surprising that a decided change has taken place in the treatment of this disease during recent years. In most gynecologic clinics radium and deep roentgen therapy have largely supplanted surgical procedures. A few surgeons still operate on growths in stage I or stage II, according to Schmitz' classification, but even in these cases the patient should be given the added protection of efficient irradiation either before or after operation.

This change is largely attributable to the poor results obtained when operation was the only recognized type of treatment. One reason for the poor results even in

operable cases was that an incomplete operation was frequently done, with rapid recurrence of the malignant lesion. In other cases, a radical procedure was attempted by a surgeon who was not experienced in this special type of operation and high mortality and morbidity rates resulted. In still other cases, operation was attempted in hopelessly inoperable cases and an incomplete operation resulted.

The radical Wertheim operation, as Ward wrote, "requires skill and experience to be properly performed and it must not be confused with the usual operation of panhysterectomy which is frequently done for carcinoma of the cervix. The difference between an ordinary hysterectomy and the radical operation may be readily understood when compared to a simple mastectomy and the modern radical operation for carcinoma of the breast. Simple hysterectomy for carcinoma of the cervix is followed by fatal recurrences in nearly 100 per cent of cases." There is no doubt that Ward's statement is close to the truth as far as cancer of the breast is concerned but you will notice from my tables that I have classified the operations as total abdominal hysterectomy and vaginal hysterectomies rather than as Wertheim hysterectomies and Schauta vaginal hysterectomies because many of the earlier cases were not so designated. There is no doubt that a more radical operation than the regular panhysterectomy that is advisable for benign cases must have been done in most cases but many of them could not be classed as the more radical procedures. If only Wertheim's or Schauta's operations had been performed, I have no doubt that I would be able to show a higher operative percentage of five year and ten year cures but would have a higher operative mortality rate. I am satisfied that care in handling the local growth in such a way as to avoid implantation of cancer cells into the operative field is most important and a wide removal of the parametrium in the bases of the broad ligaments and at the base of the bladder with the regional lymph nodes and with a generous cuff from the vault of the vagina



is much more important than the wide removal of more distant glands and pelvic peritoneum.

There is no doubt that efficient surgical treatment, when attempted only in suitable cases and by surgeons accustomed to the tedious dissection necessary, gives a relatively high percentage of cures; and when such treatment is given in conjunction with irradiation under the direction of an expert in this field of therapy, the results are so good that I feel that further trial is justified in spite of the encouraging results obtained by using irradiation alone. In no other disease is it more important that all forms of treatment be carried out by specialists.

#### JUSTIFIABLE SURGICAL PROCEDURES

With our present knowledge, the only surgical treatment justifiable, even for lesions of microscopic size, is either the Wertheim abdominal hysterectomy or the Schauta vaginal hysterectomy, both of which are difficult and time-consuming operations even when done by those accustomed to the technic. These procedures should not be undertaken, however, except for patients who are good surgical risks from every standpoint. Before attempting a Wertheim operation, the local lesion should be thoroughly destroyed by the actual cautery, or by what I consider a better method, namely, by thorough coagulation by the application of a saturated solution of zinc chloride. If the Schauta operation is attempted, after local care of the malignant growth, a cuff from the vault of the vagina should be stitched over the cervix. Postoperative irradiation, as I have said, should be used in all cases. Even in the very early cases it gives an added degree of safety. Unfortunately, we learn little from reviewing statistics, as much of the surgery done in the past, and unfortunately still being done, is not radical enough or is done in poorly selected cases with a resulting mortality rate that is too high. If a hospital mortality cannot be kept below 5 per cent, or at the outside, 7

per cent, all cases should be turned over to radium and roentgen ray therapy.

Even if we admit that the treatment of a selected group of early cervical cancers is surgical, and if men accustomed to the special type of operation indicated perform it, we are immediately impressed with the fact that such cases are rarely seen. At The Mayo Clinic, 593 new cases of carcinoma of the cervix were encountered in the years 1930 to 1934, inclusive, but in only 52, or 8.76 per cent, was operation undertaken and, in several of these cases, the condition was found to be more extensive than the results of the preoperative examination had suggested. Besides these cases in which operation was undertaken, there were 11 cases in which the lesions were considered early and 44 in which they were classed as borderline. In these patients, treatment was by irradiation. In other words 81.12 per cent of carcinomas of the uterine cervix encountered at The Mayo Clinic are inoperable when first seen.

#### PROGNOSIS

We at The Mayo Clinic are not encountering cases of carcinoma of the cervix any earlier in the course of the disease than we did 25 years ago. The early cases are almost without exception accidentally encountered in the course of general examinations. In spite of this gloomy picture, however, the fact remains that more women are being cured of cancer of the cervix today than at any previous time.

If adenocarcinoma of the cervix is discovered early, the prospect for cure by surgical means is definitely better than for squamous-cell carcinoma, because adenocarcinoma is frequently of a low degree of malignancy. Unfortunately, however, the first symptom of an adenocarcinoma of the endocervix is frequently a brisk hemorrhage. This results from ulceration of a cervical artery and in most cases, by the time that this occurs, the condition is hopelessly inoperable due to malignant extension into the parametrium and metastasis.

The outlook in cases of cancer of the body of the uterus is much more hopeful than that in cases of cancer of the cervix;

TABLE 10  
SARCOMA OF FUNDUS OF UTERUS  
SURVIVAL RATES

	Patients treated*	Patients traced	Lived 5 or more years after treatment		Lived 10 or more years after treatment			
			Patients	Percentage of traced patients	Patients	Percentage of traced patients		
							Patients	Patients
Sarcoma .....	85	84	51	60.7	58	56	30	53.6

\*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

in fact, the prospect for cure of cancer of the body of the uterus is better than that of cancer of the same degree of malignancy in any other part of the body. This is probably in a large measure due to the fact that most cases occur at or after the menopausal age when there is no doubt a definite change in the vascular and lymphatic drainage from the genital organs. The myometrium is also a barrier to extension to other organs. As a rule, cancer of the body of the uterus develops slowly and metastasis occurs relatively late. On this account it is not necessary or advisable to submit patients who have cancer of the body of the uterus to the radical surgical procedures that are indicated for cervical cancer. A panhysterectomy, after stitching the cervix shut or after packing the uterine cavity with gauze after it has been swabbed out with a saturated solution of zinc chloride in order to destroy any loose cells, is satisfactory. I am satisfied that failure to do this accounts for many of the recurrences which are due to ingrafting of cancer cells into the wound at the time of the hysterectomy.

#### IRRADIATION

As a result of the encouraging results obtained in the treatment of epidermoid cancer of the cervix by irradiation, many gynecologists and radiologists are now advising radiotherapy alone in the treatment of this condition also, but I am satisfied that when the patient is a good surgical risk, there is no good reason to change from surgical treatment which has given such good results in a large series of cases to some other form of therapy.

In the past I have only advised postoperative irradiation when the growth was found

to be of a high degree of malignancy or when it had extended well into the myometrium. Probably the percentage of cures would be slightly higher if radiotherapy were used routinely in all cases. When patients are poor surgical risks due to senility, and serious constitutional disease or obesity, or when they refuse surgical treatment or have an extensive growth that has probably extended beyond the uterine body, then thorough treatment by radium and roentgen rays is advisable and surgical treatment should not be attempted.

In this same period, from 1910 to 1933 inclusive, 85 cases of sarcoma of the uterine body were treated at The Mayo Clinic and we were able to trace all but one case. Of these 85 patients, 60.7 per cent lived five or more years and of the 58 patients operated on ten or more years ago, 56 of them were traced and 30, or 53.6 per cent, were still alive (table 10).

#### SUMMARY AND CONCLUSIONS

1. There is no doubt that progress is being made with a better understanding of the physical properties and chemical reactions of radium and roentgen rays.

2. The type of surgical procedure indicated for carcinoma of the uterus will probably never be improved.

3. If operation is to continue to be considered a justifiable form of treatment for squamous-cell carcinoma of the cervix, great care must be exercised by experienced surgeons to operate only in early cases and in those cases that are good surgical risks. Otherwise, the results will not be any better than those obtained by the use of irradiation alone and there will be an unwarranted high mortality rate.

4. Operation must still be considered the best treatment for cancer of the corpus uteri in the majority of cases.

5. The prospect for cure of sarcoma of the body of the uterus after treatment is not quite as great as it is after treatment for carcinoma at the same site.

## REFERENCES

1. Hoffman, F. L.: *The Mortality of Cancer throughout the World*. Newark, New Jersey, The Prudential Press, 1915.
2. Masson, J. C. and Broders, A. C.: Malignant epithelial neoplasms. In: Foxworthy, F. W.: *Life Insurance Examination*, St. Louis, C. V. Mosby Company, 1924, p. 363.
3. Ward, G. G.: The present status of radium therapy in cancer of the uterus, *Surg. Gynec. & Obst.*, 57:546, 1933.

## DISCUSSION

Dr. Peter Graffagnino (New Orleans): Certainly no clinic in this or any other country can present reports more authoritative than those from The Mayo Clinic due to the wealth of material at their disposal.

Not having read this paper before, I am in no position to analyze Dr. Masson's figures, but I believe that they are comparable to the average figures reported by other clinics.

There are a few things I want to make clear in the minds of the general practitioner and lay public about cancer, particularly cancer of the uterus. It has been said that one woman out of every eight who reaches the age of forty dies of cancer of the uterus. This statement is incorrect. You realize we would not have enough hospitals to take care of all of the cancer cases in the country if this were true. As a matter of fact, less than one woman out of a thousand develops cancer of the uterus.

A great deal has been said about the higher incidence of cancer in married than in unmarried women. I assure you that the civil state of the patient seems to have nothing to do with the incidence of cancer. The same thing is true concerning irritations and lacerations of the uterus. As many cases of cancer of the cervix without laceration, infection or irritation occur as otherwise. For every woman who develops cancer after irritation or laceration, there are hundreds of thousands who do not develop it under the same conditions. Therefore, the cause of cancer cannot be attributed to trauma alone; there must be other factors present.

The diagnosis of cancer of the cervix is of great importance. Fortunately for women, the organ most often involved is situated in such a position as to be readily exposed for inspection, palpation and treatment. There is no reason why the diagnosis of early cancer cannot be made after proper examination by speculum or biopsy. There is certainly no more, and sometimes less difficulty in the diagnosis of cancer than in various other conditions.

How can this early diagnosis be made? First, the cervix must be adequately exposed, adequately illuminated, and after this is done, should be deliberately and thoughtfully examined. The physician, after due consideration, should be able to conclude whether or not the possibility of a cancerous or precancerous condition exists. Should there be the slightest question, it is his duty to secure a specimen of tissue and submit it to the pathologist for diagnosis. The microscope alone makes the diagnosis. The eye and the finger cannot positively diagnose this condition. I believe that this also applies in advanced suspected cases of cancer; the microscope alone will tell whether it is truly cancer or not.

Concerning the treatment of cancer, I believe that cancer is curable in its early, "localized" stage. This curability depends, however, upon prompt and adequate measures of treatment. What are these? Radiation, either by radium or deep therapy, in combination or alone, offers the best possible measures for the relief of cancer in the early stages, providing adequate dosage is employed.

There is a question in my mind as to whether surgery plays any part today in the cure of early cancer. The reason I make this statement is that not long ago I reviewed the work of Dr. Pearson, a pathologist, who analyzed the autopsy studies of cancer cases that came before him. Here are some of the interesting facts reported: It was found that most of these patients died from peritonitis following surgery. Cultures of the parametrium in 65 cases showed streptococcus in 36 cases and the operative mortality in this group was 61.1 per cent. In the cancer deaths that occurred after radiation, he found that 31 per cent had not only the proximal but distal glands involved; that in 15 per cent of the so-called early cancer cases, the proximal glands were involved.

In regard to fundal carcinoma, surgery is still the best method of treatment.

Dr. D. C. McBride (Alexandria): There is nothing I can add to the paper except I think we should keep in mind the Wertheim operation is very difficult to do and should not be attempted unless one is skilled in this branch of surgery.

Dr. H. G. F. Edwards (Shreveport): As the radiation therapist and Clinical Director of the Tumor Clinic at the Shreveport Charity Hospital, it has been my misfortune to examine, treat and follow more than 700 cases of cancer of the uterus. Sixty-five of these were carcinomas of the fundus; 70 per cent were advanced cases. I am glad to hear Dr. Graffagnino express optimism in the cure of carcinoma of the uterus with irradiation therapy. I am not quite as optimistic in regard to grades III and IV of cervical cancer.

Dr. Masson has brought out the important fact that carcinoma of the cervix does not present early signs and symptoms. When the patient starts bleeding and has leukorrhoea, this does not indicate

early signs of cancer. The onset of cancer is advanced to a stage when the cervical glands are involved and erosion of the mucous membrane is taking place and there is bleeding and ulceration there. Recently, Novak has brought attention to precancerous intra-epithelial carcinoma of the cervix. Whether or not this is to be considered as early carcinoma or regarded as a precancerous lesion, remains to be seen. In my personal opinion, I have always held that it is not necessary that the basal membrane be involved to say we have cancer. I have always held that when one finds carcinoma cells on the so-called safe side of the fence, that it is cancer and it must get on the other side of the fence in some fashion.

Dr. Masson and Dr. Graffagnino spoke about radiation and what I want to bring out is that radiation of the cervix and fundus carcinoma must be complete irradiation; more than a single capsule of radium in the canal. A little dose can and will cure cancer in stage I and sometimes stage II, but a patient who has stage III or IV and is treated with radium alone, can not hope for a cure in that fashion. We have studied patients using protracted doses of high voltage x-rays somewhat after the Coutard method. We find that by the time 2000 roentgens were administered to each of four pelvic fields and protracted over 20 to 30 days, all of the carcinoma cells in the cervix appear to have been destroyed and we find a more suitable application for the radium at this time. If, however, the radium is not applied in three weeks after this high voltage treatment, there is regrowth of the carcinoma cells because of a disturbance in the blood supply and lowered tissue resistance.

Dr. Graffagnino has reported a case of cancer of the cervix, stage IV, in which postmortem examination revealed that all the cancer in the treated area from the iliac crest down was destroyed. This has led me to a new method of attack and now fields above the iliac crest are employed which include para-aortic nodes. Where this will lead, I do not know, but it does offer some assistance.

A drug which has been of material benefit and turned many an unfavorable case into a happy cure has been sulfanilamide. Infection very often defeats a cure, more so than anything else. Sulfanilamide will clear up the ulcerated areas and then you many go ahead with treatment and pull the patient through a bad spot. My experience with lead therapy has been limited. With two cases, I have noticed some results.

Dr. Masson (In conclusion): I want to stress the fact that I am not a strong believer in operation for carcinoma of the cervix of the uterus. I do not think there is any indication for surgical treatment if a given surgeon feels that the operative mortality is going to be greater than 5 or 6 per cent. I do not think we are justified in sub-

jecting patients to serious operations when the end results are so close to those obtained by irradiation alone. In The Mayo Clinic we use a great deal of radium. I think we have the very latest type of x-ray machines and I know that those in charge of these departments<sup>6</sup> believe in thorough treatment. I think, in operating on patients with cancer of the cervix, one should only operate on good surgical risks. I think the mortality should be down to 4 per cent. I feel that radium and roentgen therapy are, in most cases, indicated, and in my paper I mentioned that we operate on just a little more than 8 per cent of the patients suffering from cervical cancer that come to the clinic. Most of these carcinomas are found accidentally in the course of a general examination and would be classified as stage I or II on a basis of I to IV.

There was one thing mentioned in the discussion, "that all cases of cancer are curable." I cannot agree with that statement. The same thorough treatment with radium and x-ray will have very definite action in one case and will not in another. You cannot pile on irradiation.

Most statistics on irradiation give a three year cure rate. In going over my cases, I was struck by the fact that the ten year cure rate is almost as good as the five year cure rate.

Another thing that interests me is the fact that by surgical treatment we occasionally cure an epithelioma of the cervix with gland involvement and I do not think this is possible by irradiation alone.

After the introduction of radium I stopped operation on all cervical cancers but after seeing the results obtained by a few surgeons abroad and seeing so many cases in which the results were only temporary following irradiation alone, I have again decided to treat by a combination of surgical and roentgen therapy all patients in the early stages of cervical cancer who are good surgical risks. I have adhered to this plan for the last ten years and am well pleased with the results.

---

## TUBERCULOSIS\*

### A SYMPOSIUM

#### TUBERCULIN TESTING IN PUBLIC SCHOOLS

JULIUS L. WILSON, M. D.†  
NEW ORLEANS

Tuberculin testing in public schools is the outcome of a gradual accumulation of knowledge as to the best method of utiliz-

---

\*Presented before the Orleans Parish Medical Society, May 22, 1939, under the auspices of the Tuberculosis and Public Health Association of Louisiana, and the Orleans Parish Medical Society.

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana.

ing tuberculin, the important diagnostic tool introduced by Koch in 1890. The subcutaneous test was first used. This method often caused the reactivation of previously latent lesions, and after a rather extensive use for a short period it was generally abandoned as being too dangerous. Then the pediatricians reintroduced tuberculin testing of babies and children by the Pirquet test, and a year or so later the Mantoux test, by intradermal injection, was introduced. For a long time use of tuberculin was confined to pediatricians. When tests were made on older individuals everyone reacted after the age of 14 or 16. It was not until the Framingham survey in 1917 and 1918, the first attempt in this country to make an epidemiologic tuberculosis survey, that it began to be realized that not everyone, particularly in rural and small town districts, was infected before adult life. Following this, other series of tuberculin tests in various parts of the country showed percentages of children reacting, varying from 10 to 25 per cent in the grade schools. Rathbun, in Chautauqua County in New York in 1928 to 1930, demonstrated that tuberculin tests, followed by x-ray of positive reactors, were a very valuable means of detecting early tuberculosis, particularly in high school boys and girls, and to a lesser degree among the grade school students. He found 25 per cent of his school girls and boys reacting positively to tuberculin.

Shortly after this McCain, in North Carolina, found similar percentages; 22 per cent of white and 27 per cent of colored children reacting. About this time, between the middle 1920's and early 1930's, it began to be realized that the incidence of positive reactions to tuberculin was decreasing. Harrington, in Minneapolis, found between 1926 and 1936, the incidence of positive tuberculin at the age of ten dropped from 50 to 17 per cent. At the age of 14, it dropped from 70 to 26 per cent. It also came to be recognized that between the ages of 5 and about 14, preschool age and puberty, there was relatively little value in testing school children. This age, from 5 to 14, while showing an increasing percentage of reac-

tion to tuberculin of from 2 to 4 per cent a year, showed very little active tuberculosis. Surveys made in various parts of the country of grade school children disclosed few cases of tuberculosis as a result. Hence it has come to be felt that tuberculin testing in schools is a valuable means of finding cases of tuberculosis, but that it is best restricted to the high school group. All over the country, except where they wish to make surveys for information on the incidence of infection alone, the surveying of the grade schools is being dropped and rather intensive study of high school ages is substituted.

#### REASONS FOR TESTING

The purposes of tuberculin testing in high schools are as follows: First, purely and simply as a case-finding method. This is valuable among the students even though a relatively small percentage of cases is found. Seventy-five to 90 per cent of the cases found by tuberculin are in the early stages. When a large number of students are examined this brings under medical care quite a considerable number of persons who can be treated and cured readily in this early stage. Also it is a means of finding cases among the contacts of these students. X-rays are used where positive reaction is found. In many instances, particularly where the percentage of students reacting is small, x-ray is a successful method of locating positive open cases of tuberculosis in the community.

Second, not less important than its use as a case-finding method, is the value of tuberculin testing as an educational measure. This of course is more difficult to estimate in terms of percentages, of dollars and cents, or other accurate figures, but a tuberculin testing campaign has great value in educating the students. It is part of their health education. It is a test which they feel on their own skins and which brings home to them, therefore, a very real sensation to stimulate the gray matter of the brain. They ask questions and find out about tuberculosis. We feel this is a very important result of the tuberculin testing. Also, it educates the parents. It makes

them ask questions, often to the embarrassment of the family physician. It is a necessary function on his part to meet those questions and to attempt to explain what a positive tuberculin reaction means to the student and to his family.

Finally, the purpose of tuberculin testing is to gather data on the incidence of tuberculosis in any given community. In this way we are collecting evidence as to the infection rate in all parts of the country and evidence, as I pointed out, of the decline of this infection, which is useful in directing our measures for the future.

#### METHOD OF TESTING

The method of using the tuberculin testing in the schools is more or less standardized. The same method has been used here in New Orleans for the past six years as originally outlined by Sullivan and has not been deviated from. The only change has been that we have made the shift from testing the grade school pupils to concentration upon the students in the high schools. The first and perhaps the most important part of the whole method is instruction. We go around and talk to the members of the high school. We take movies with us and project them wherever apparatus is available and try to inform the boys and girls exactly what the tuberculin test is for. We lay emphasis on freedom of choice of the individual as to whether he shall have the test or not and the need for parental consent. We also emphasize the fact that this is done as a privilege; but that if positive findings are made, he is to be referred to the care of his own doctor. Each student gets a yellow slip, explaining the purpose of the test, information that it is necessary for the consent card to be signed by the parent and about the follow-up which will be made with regard to x-rays and medical care. They also receive a little folder provided by the National Tuberculosis Association, describing in simple terms the meaning of the tuberculin test. Each student also receives a consent card which is to have the student's name and address on it, questions as to whether any tuberculous contacts are in the home, and a ques-

tion asking the family physician's name and address. A parent's signature must be affixed as no test is given without a signature on the card, held in the hand of the student, when he comes in for the test.

#### TECHNIC

Of course, you are probably familiar with the technic. The arm should be wiped off with alcohol, the platinum needles flamed between each two injections. Five one-thousandths milligram of purified protein derivative is given intradermally. Great care is taken not to inject beneath the skin as this may be dangerous. The test is read at 48 hours. If there is definite induration, it is positive; the doubtful cases are called negative. Those students who react positively are then referred for chest films. These are done at cost and paid for by the Christmas Seal Committee. They are all read by one man and classified by him. Reports are sent to the parents when the test is positive. All positive x-rays are reported to the family physician.

#### ADVANTAGES OF THE TEST

This method of mass testing of large numbers of students has certain great advantages over any effort to test the students in private practice or in homes. In the first place we can get these students just at this age when they are old enough so that the case-finding method is of value. In another year those graduating from high school will be scattered and cannot be reached. In the second place it is quicker and more convenient to do a large number of tests than one or two; one man can do 100 or 150 or more in an hour. Of course the element of economy comes into the picture; purified protein derivative, for instance, is put up in ampoules for 100 injections. Ordinarily for a single injection it comes in ampoules for ten, which is correspondingly more expensive.

This method of mass testing reaches various individuals in the community who cannot be reached through ordinary channels, since these boys and girls reached in schools in the poorer districts would never be able to pay for injections by their own

physicians and belong to the class of the population in which tuberculosis is most prevalent. This is particularly true among the colored students.

Also mass testing has a great advantage of uniform interpretation since all cases are read alike and classified accordingly. As a result of this method, we get about 30 per cent of the school population among the white students to bring in consent cards and have the tuberculin test. Among the colored high school students, we have 50 per cent consenting to the test. In 1937 and 1938 there were 3,461 boys and girls in high schools who were tested; of these, 40 per cent reacted positively to the test. These 1,254 students were x-rayed and 30 per cent of the white reactors showed x-ray evidence of tuberculosis, mostly calcification either of the lungs or hilum or both. Sixty-three per cent of the colored students showed definite evidence of infection; about twice as high a percentage. Thirty cases of tuberculosis were disclosed by this method—just under one per cent (0.9 per cent).

This year we have tested 2,128 students, of whom 35 per cent of the white students reacted positively and 50 per cent of the colored.

#### SUMMARY

We believe that this campaign of tuberculin testing, although it discloses actually few active open cases of tuberculosis, is of great value. It finds these persons with tuberculosis early and removes them from contact with other boys and girls and gets them under treatment when they can be easily cured. Perhaps its greatest value is in educating the students and parents to the importance of tuberculosis in the community and in bringing home to them the realization that this disease is a common infection, which is extremely prevalent. These high school boys and girls must be protected and their health guarded in order that the next generation shall see a greater decline of tuberculosis in their community and all over the country.

## THE ROENTGEN RAY IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

LEON J. MENVILLE, M. D.†

NEW ORLEANS

It is unnecessary, I am sure, for me to expatiate upon the importance of the roentgen ray in the early diagnosis of pulmonary tuberculosis. We are all in agreement in regard to its helpfulness in the early diagnosis of this condition. However, I am firmly convinced that its value could be enhanced tremendously if there were a closer cooperation between the clinician and the roentgenologist. It is my firm conviction that all suspected cases of early pulmonary tuberculosis should be thoroughly examined by the clinician and then referred to the roentgenologist for a roentgen ray study of their chests, and, upon the completion of this examination, a consultation should be held between the clinician and the roentgenologist for discussion of their respective findings. If this is done, I am sure the patient will be the recipient of great good.

Occasionally we hear the remark that there are differences of opinion among roentgenologists concerning a roentgenogram having certain shadows simulating early tuberculosis. Roentgenologists, at times, do disagree concerning a diagnosis, but, after all, they are not any different in this regard than the psychiatrists, internists, gynecologists, surgeons, and so on. The greatest discrepancy which occurs in the diagnosis of early pulmonary tuberculosis, from an x-ray standpoint, is the result of indiscriminate installation of x-ray apparatus by physicians who have not even had the time to learn what the normal chest looks like and do not know anything about the variations within the normal. Surprising as it may seem, almost immediately upon the installation of such apparatus, diagnoses are made of early pulmonary tuberculosis. I think that this is a very pernicious practice and certainly it is not

†From the Department of Radiology, School of Medicine, Tulane University of Louisiana.

helpful in the control of the disease, tuberculosis.

The shadows that are seen on the roentgenogram representing early pulmonary tuberculosis appear as distinct, circumscribed shadows which may be solitary or, as is more often the case, they occur as groups of smaller shadows. These shadows may vary in size, some as small as millet seeds, or they may be several centimeters in diameter. They may assume different shapes depending on associated inflammatory products of the tuberculous lesion. The cause of these shadows on the x-ray film is the result of the pathology of the disease. In the very early beginning of tuberculosis, before caseation has taken place, the lesion absorbs but a very small quantity of roentgen ray, and, as a consequence, there are found but faint shadows which lack the intensity which is observed when caseation has taken place. Accompanying these pathologic changes in the lung tissue in nearly all of the early cases of pulmonary tuberculosis, there is an inflammatory exudation in the alveoli around the lesion. This exudative material absorbs a certain amount of the x-ray and accounts for the indistinct outline and homogeneous shadows of some of the early lesions.

The question is often asked, "How small a tuberculous lesion may be visualized by means of roentgen ray?" Experimental work has demonstrated that a lesion as small as four millimeters in diameter, situated on the anterior surface of the lung, can be visualized by the roentgen ray. We are not particularly concerned, however, regarding how small a tuberculous lesion can be visualized, but what we do wish to know is, will the roentgen ray visualize a tuberculous lesion that is capable of producing clinical symptoms? I can answer that question by saying that we honestly believe that the roentgen ray, in almost all instances, will visualize a tuberculous lesion that is producing clinical symptoms. Of course, it must be appreciated that a very early microscopic lesion, which in all probability is not producing any clinical symptoms, is not susceptible to being visualized,

since we have not as yet been able to attach a microscope to the end of an x-ray tube.

#### EARLY TUBERCULOUS LESIONS

Another question that is often asked, "Where do you most often find early tuberculosis by means of the x-ray?" Many years ago we were taught that early pulmonary tuberculosis was most often found in the extreme apices. Today, we know that is not so. The x-ray has demonstrated that the early lesions of pulmonary tuberculosis are more often found in the infraclavicular space, more often on the right side than on the left, more often in the first and second spaces, and more often posteriorly than anteriorly. We, however, see early pulmonary tuberculosis occurring in any part of a lung, but the most frequent site of very early pulmonary tuberculosis, from an x-ray standpoint, is in the first and second interspace, more on the right than on the left, and more often on the axillary than the medial half.

Now another question that is often asked, "Is the roentgen appearance of tuberculosis typical of this disease?" This can be answered yes and no. Any inflammatory deposit or even a neoplasm in the lung will cause a shadow very much like that of early tuberculosis. It is almost a cardinal rule that a small, roughly circumscribed, homogeneous shadow or group of shadows occurring in the infraclavicular space, is almost invariably tuberculosis. However, as mentioned before, inflammatory deposit or neoplasm may cast shadows in those locations that simulate early pulmonary tuberculosis, and, for this reason, the roentgenologist must have a fair knowledge of the roentgen pathology of these conditions, if he is to make an accurate diagnosis. For instance, occasionally a resolving pneumonia of an upper lobe may leave a residuum of infiltration, which in size and arrangement of its shadow may resemble on the x-ray film an early pulmonary tuberculous process. It is in such cases that the clinician may be most helpful, since in certain instances the clinical symptoms may be helpful, and on the other hand they may not. In such a case, the ultimate decision



may be made on a subsequent examination after complete resolution, which will occasion a delay of a few weeks. An early, solitary, new-growth metastasis occurring in the infraclavicular space may closely resemble an early tuberculous lesion and vice versa. However, in such instances when we are in doubt, we have again the clinician to call upon to search for the primary growth. If successful, then the diagnosis is made. If the search is unfruitful, then we can wait a few weeks and another roentgenogram of the chest is made which will by that time show an increase in the size and number of the metastases.

#### SUMMARY

The small proliferative lesions of early tuberculosis, in my experience, bear close observation and should never be taken lightly. Ever so often there are patients referred for roentgenographic examinations of the chest, when an early pulmonary tuberculosis is found, and the referring physician informs the patient that there is little to worry about since the lesion is small. It is true that in the majority of such instances the prognosis is good, if the patient is under the care of one who understands how to treat tuberculosis, but we must remember that such a small lesion may cause a widespread, disseminated pulmonary tuberculosis in a few days or week.

—o—

### THE VALUE OF EARLY DIAGNOSIS IN PULMONARY TUBERCULOSIS

EDGAR HULL, M. D.†

NEW ORLEANS

In 1935 the death rate of tuberculosis in sanatoria throughout this country was 24 per cent. This figure refers only to deaths within the institutions. Practically none of the patients discharged from them are cured in the true sense of the word, and a large percentage die of their disease

within a few years. In 1931 a follow-up study by Waring showed that of 2,651 patients with tuberculosis, only 50 per cent were alive after five years, only 25 per cent after 10 years, and only 15 per cent after 15 years. It is probable that if a similar survey were made a few years from this present time, it might reveal a lower mortality, because only recently has collapse therapy, which has frequently proved curative in otherwise hopeless cases, been used on a large scale. The facilities for the adequate treatment of patients with tuberculosis are also increasing rapidly, and this increase will undoubtedly effect a further reduction in the mortality of the disease.

The fact remains, however, in spite of the potential favorable factors mentioned, that a large percentage of patients with tuberculosis have incurable disease when they are first seen or when the diagnosis is made. Under the circumstances, it is no exaggeration to say that even with the best of therapy perhaps 50 per cent of all patients with tuberculosis are likely to die within 15 years after they contract the disease. Yet the fact that tuberculosis carries a very high mortality is often overlooked. This happens because the disease is chronic in most cases, and as a result the average practicing physician follows a relatively small number of patients from the time of diagnosis to death or recovery.

#### CAUSE OF HIGH MORTALITY

The principal factor responsible for the high mortality of tuberculosis is delay in diagnosis until the disease has progressed beyond the early or minimal stage. In sanatoria throughout the country only about 13 per cent of the patients have minimal disease on admission. Of the patients admitted to the tuberculosis division of Charity Hospital of Louisiana at New Orleans less than 3 per cent have minimal disease. The incidence of minimal disease is probably considerably higher among admissions to the general medical wards, for many patients with minimal tuberculosis are not transferred to the tuberculosis division, but are sent home to "rest." To

†From the Department of Medicine, School of Medicine of Louisiana State University and the Tuberculosis Service of Charity Hospital of Louisiana at New Orleans.

my mind, this is a grave mistake. I should much prefer to have hopeless, far advanced patients sent home to rest and have the patients with minimal disease, who have every chance of complete recovery under proper treatment, do their resting in an institution, where their progress for better or for worse can be closely supervised.

Delay in diagnosis is due only in small part to the inability of physicians to recognize tuberculosis in patients who have symptoms due to the disease. It is largely due to the fact that during the minimal stage symptoms are trifling or are entirely absent, and the patient therefore does not visit the physician until the disease is far advanced. The diagnosis of minimal tuberculosis, as another essayist of the evening has explained, is largely a matter of examining contacts and identifying cases among apparently healthy adults and adolescents. Programs of this sort result in the recognition of about 70 per cent of the cases of tuberculosis in the minimal stage.

Other factors contributing to the high mortality of tuberculosis are the inherent seriousness of the disease, plus the fact that many patients receive inadequate or improper treatment. Inadequate treatment

## IMPORTANCE OF EARLY DIAGNOSIS

The point which I wish to stress tonight is the importance of recognizing tuberculosis while the disease is still minimal, that is, before large areas of lung tissue are involved and before cavities detectable as such by x-ray have developed. The reasons why early diagnosis is important may be listed as follows:

1. The response to treatment is much more favorable when therapy is begun early in the course of the disease. The difference in response according to the stage of the disease is well illustrated in a recent report by Leslie and Anderson, from the Michigan State Tuberculosis Hospital. At the time of discharge, the disease was arrested or apparently arrested in 90 per cent of the minimal cases, as compared with 79 per cent of the moderately advanced cases and 50 per cent of the far advanced cases. The hospital mortality was zero for the minimal cases, 2.3 per cent for the moderately advanced cases, and 25 per cent for the far advanced cases. The difference in response to treatment is even more marked in other institutions which carry on less intensive programs of collapse

CONDITION ON DISCHARGE OF 832 PATIENTS WITH PULMONARY TUBERCULOSIS  
(Leslie and Anderson, 1937)

All Cases	Arrested, apparently arrested, or quiescent	Improved	Unimproved		Sputum negative	Sputum positive
			Unimproved	Died		
Minimal ..... (9.3%)	95%	0%	5%	.....	100%	0%
Moderately advanced ..... (32.5%)	93%	2%	3%	2%	91%	9%
Far advanced ..... (52.8%)	58%	6%	11%	25%	68%	32%

CONDITION ON DISCHARGE OF PA-  
TIENTS IN ALL SANATORIA THROUGH-  
OUT UNITED STATES, 1935.....

29%	30%	17%	24%
-----	-----	-----	-----

may be due to several causes: The limited facilities for caring for patients with tuberculosis; lack of knowledge on the part of the profession as to modern methods of treatment; and the unwillingness of many patients to traverse the long and tedious road which leads to complete recovery.

therapy in moderately and far advanced cases.

2. Treatment is much less formidable in early than in more advanced cases. The majority of patients with minimal tuberculosis will recover without collapse therapy of any sort, and, if such therapy should

be necessary, the relatively safe procedures of pneumothorax and crushing of the phrenic nerve will nearly always suffice. Collapse therapy, however, is needed in nearly all cases of moderately and far advanced disease, and often such patients are too hopelessly ill for any sort of therapy. The procedures which must be used, such as bilateral pneumothorax, thoracoplasty, and extrapleural pneumolysis, are more dangerous in themselves, and the patients who need them are in poorer shape to withstand them. The complications of pneumothorax therapy also increase according to the stage of the disease at which the procedure is instituted.

3. The incidence of extrapulmonary complications, such as laryngeal and tracheobronchial tuberculosis, tuberculous enteritis, and metastatic tuberculous lesions, increases as the stage of the pulmonary lesion advances. These complications greatly add to the problems of therapy and may retard or actually prevent recovery.

4. The great majority of patients with minimal tuberculosis are not great menaces to society, since they cough and spit very little if at all, and therefore disseminate relatively small numbers of tubercle bacilli. On the other hand, most patients whose disease has reached more advanced stages cough and spit a great deal. As a result, before they are admitted to institutions, and even after they are discharged, they may infect many other persons.

5. Practically all patients with minimal disease who enter tuberculosis sanatoria are discharged with negative sputum, but many patients with more advanced disease are necessarily discharged with positive sputum. In the report by Leslie and Anderson, which has already been quoted, all the patients with minimal disease, 90 per cent of the patients with moderately advanced disease, and 70 per cent of the patients with far advanced disease were discharged with negative sputum. This is an unusually high percentage. A far lower proportion of patients with moderate and far advanced disease are discharged from the tubercu-

losis unit of Charity Hospital with negative sputum.

6. The period of hospitalization, invalidism, and active treatment is much shorter for patients with minimal disease than for patients with more advanced disease. This statement, which is a corollary of the preceding statements, needs no explanation.

It is apparent that early diagnosis in tuberculosis is of definite value to the patient and to the health and financial well of the public. Having, I hope, proved that point, I shall illustrate it by describing the favorable courses of four patients in whom tuberculosis in the minimal stage was recognized. As a matter of fact, they are the only patients with minimal tuberculosis whom I have under observation at the present time except one who is still in the hospital. I have seen and followed many patients with advanced disease, and have seen many of them suffer and die, but, like other physicians, my observations of patients with minimal disease have been regrettably few. I cite these cases not because they add anything to the proof of the point I have tried to make, but because their progress seems to represent the average course of patients with minimal tuberculosis who have received adequate treatment.

#### CASE REPORT NO. 1

In the fall of 1935 I was called to see a white man, 21 years of age, who had been in bed for two weeks with an upper respiratory infection. He had had a chronic cough for two years and had lost some weight, but had not previously consulted a physician. The chief symptom when I was called to see him was severe headache. He had physical signs of advanced tuberculosis in the right upper lobe, a stiff neck and a positive Kernig's sign. Within a week he was dead of tuberculous meningitis.

His brother, 19 years of age, was apparently in good health, although thin. A von Pirquet test, however, was positive, and an x-ray of the chest showed minimal tuberculosis at both apices. The process was active, as was evidenced by the fact that he had an afternoon rise of temperature to 99.5° F. every day over a two-week period. On a regimen of rest his lesions rapidly regressed. He was able to return to work in six months, and has remained well over a three and a half year period, during which x-rays at three month intervals have revealed no evidence of tuberculosis.

## CASE REPORT NO. 2

A white girl, 16 years of age, was admitted to Charity Hospital in the spring of 1935, with hemoptysis, following a three month period of ill health with cough and loss of weight. She had far advanced tuberculosis, with a large cavity in the right upper lobe and a small lesion in the left hilar region. She received artificial pneumothorax, and for a year did well. Then she developed a cavity in the left lung, and bilateral collapse therapy was necessary. After many vicissitudes, and alternating periods of improvement and relapse, she died in April, 1939.

During a check of the family, it was discovered that the patient's sister, a school teacher, 29 years of age, had minimal tuberculosis in the left upper lobe. Although she did not believe that she was ill, she admitted that she had a slight cough, and it was found that she had afternoon fever. After two months' rest in bed, during which time the lesion showed no tendency to regress, pneumothorax was induced and was continued for two years without complications. The lung, on re-expansion, showed only a scar at the site of the former active lesion. This patient has remained in good health, and has lost only one semester from her school work.

## CASE REPORT NO. 3

A white woman, 21 years of age, was admitted to Charity Hospital in the spring of 1935, with minimal tuberculosis involving both upper lobes. She had consulted her physician because she did not regain her strength after childbirth, and the physician had suspected tuberculosis because of afternoon fever, loss of weight, and a slight cough. On a rest regimen her lesion regressed rapidly, and within six months no x-ray evidence of tuberculosis remained. She was kept in the tuberculosis unit of Charity Hospital for 15 months, and has led a life of restricted activity since her discharge. An x-ray examination in March, 1939, showed no evidence of pulmonary pathology.

## CASE REPORT NO. 4

A white woman, 26 years of age, was admitted to Charity Hospital in the spring of 1938. The night before admission, while on a drinking bout, she had spit blood. An x-ray revealed minimal tuberculosis in the right upper lobe. The patient had led a life in which dissipation had played a prominent role, and in the ward she was uncooperative and unruly. Because it was felt that she could not be depended upon to cooperate in a prolonged regime of rest and restricted activity, pneumothorax was induced, and as soon as satisfactory collapse was obtained the patient was discharged for the sake of peace in the ward. Since her discharge she has shown surprising cooperation in returning for pneumothorax refills, although I cannot vouch for her scrupulousness in

carrying out instructions as to rest and diet. She remains in apparent good health, however, has no fever or cough, and her x-rays show good collapse of the right lung, with no evidence of disease of the left lung.

## SUMMARY

The importance of the early diagnosis of tuberculosis is emphasized by means of statistical data and illustrative cases. It is pointed out that the chances of recovery are enhanced, the treatment is less arduous and formidable, the menace to the public is diminished, and the expense to the patient and to the community is lessened when tuberculosis is recognized while it is still in the minimal stage.

## BIBLIOGRAPHY

- Edwards, H. R.: Case finding in tuberculosis: An adult problem. *Am. J. Med. Sci.*, 194:652, 1938.  
 Jacobs, S.: Chronicity of pulmonary tuberculosis. *New Orleans M. & S. J.*, 91:364, 1939.  
 Leslie, G. L., and Anderson, R. S.: Intensive collapse therapy in pulmonary tuberculosis. II. A study of the indications and use of various operative procedures in a group of 1124 patients. *Am. J. Med. Sci.*, 194:1, 1937.  
 Monte, L. A., and Blitz, O.: Factors delaying the diagnosis of pulmonary tuberculosis. *New Orleans M. & S. J.*, 90:468, 1938.  
 Waring. Quoted in Cecil, R. L.: *Textbook of Medicine by American Authors*, W. B. Saunders Company, Philadelphia and London, 1931.

## DISCUSSION

Dr. W. H. Perkins (New Orleans): It is rather difficult to add anything of importance to these papers, but, there are two or three points I would like to emphasize.

The term minimal has been mentioned frequently and I think we are sometimes in danger of thinking too strictly in terms of clinically minimal. I have become accustomed to think of two types of minimal; that which we recognize clinically with certain findings, x-ray or otherwise, and the other which is pathologically minimal. The pathology is strictly only minimal before the onset of the allergic reaction. As long as the process of sensitization is present we can appreciate the fact that, by the time the patient has reached the clinical minimal stage, he is far advanced in pathology. It is this period of minimal pathology that should concern us.

I am not quite convinced at all that we should give up the idea of looking for tuberculosis in young children, even in the mass studies. I am of the opinion because of the still unknown factors in the natural history of tuberculosis. Although there is a certain period which we speak of as the "safe period", from five to thirteen years of age, there are unknown factors as to why we have the retrogression, or new infection stage near the onset of puberty. For that reason, I think every

physician should adopt a "must" attitude in tuberculosis in every patient; particularly pediatricians and others seeing infants, young toddlers of preschool age and children of every school age. He should at least rule out tuberculous processes in the early minimal pathologic stage before he admits that there is no hazard to the child. There is only one way in which that can be done. We cannot diagnose definitely through means other than a thorough history, tuberculin testing and x-ray. For this reason I feel that every child should be investigated with the idea of ruling tuberculosis out of the picture. We do it with venereal disease and should do it with tuberculosis. By giving tuberculin tests we can say this child has or has not tuberculous infection. To get the actual picture of what is going on we must then be able to visualize it and this is accomplished only by x-ray.

We were shown 20 years ago how to give pneumothorax but only in recent years has it come to be generally used. In other words, we are lagging terribly in our application of knowledge and do not emphasize these points. I am primarily interested in tuberculosis as a disease and have become accustomed to thinking more in terms of where the patient got it than of the person who has it. For this reason it is important to find out which infants and young children have it and which do not. If they have it, they have gotten it close at hand. We should pick up the contact cases by tuberculin tests, and the follow-up with x-ray. The importance of the history must be recognized for in it the environment of the child stands out as the highest point. Knowing the source of the contacts we must then go after them for there is no use taking care of the child who has the infection unless we reduce the probabilities of that child getting further dosages from that same source.

Dr. Sydney Jacobs (New Orleans): The philosophy of the early diagnosis campaign is that the sooner tuberculosis is diagnosed, whether in the child or adult, the quicker, the easier, the more cheaply and more safely can that tuberculosis be arrested. It is still unfortunately true that at least eight out of every ten people who come to institutions have moderately advanced tuberculosis. Despite all propaganda that has been carried on for the past quarter of a century and more, the majority of people who report to physicians for examination do so only when the symptoms are impressive. The only logical conclusion to draw from this is that we must go after tuberculosis where the people who have it do not suspect that it exists. Such a campaign has been presented to you.

Dr. Wilson has shown quite clearly how this can be done in the public school system and how it is done in groups which can be easily obtained for the purpose of study. Such groups are children

in school, high school students, the students in colleges and in medical schools. This can also be conducted in C. C. C. camps and in other institutions where large groups of people are available for examination.

Dr. Menville has presented to you the diagnosis of tuberculosis as it may be made with the aid of the x-ray. It is unfortunately true that there are many practitioners who do not suspect tuberculosis when they should. Such diagnoses can be made only by properly studied x-rays in conjunction with clinical data.

Dr. Hull spoke of the value of the early diagnosis campaign and has clearly presented to you the fact that if we diagnose tuberculosis early and if we treat it early, we can cause arrest of the disease at a time when there will be most benefit. The only thing for us to do is suspect tuberculosis in every patient who has any symptoms of any sort at all until those symptoms are definitely linked with a given pathologic process. If we wait to make the diagnosis of tuberculosis until there is cough and expectoration in great amount, and fever, I fear we will not be able to diagnose many minimal lesions; such a clinical picture shows far advanced tuberculosis. The only way to make an early diagnosis, that is of "treatable" disease, is by a regimented effort. To do this is the object of the early diagnosis campaign.

Dr. I. L. Robbins (New Orleans): At the risk of being considered somewhat repetitious I feel that for those of us who have been interested in tuberculosis for a long time this symposium is of such great importance that it is worthy of our earnest consideration and calls for some added remarks.

I was impressed by what Dr. Menville said about the physician attempting to interpret x-ray pictures. I agree with him, that even in the best hands the roentgenogram presents difficulties in the diagnosis of minimal or incipient tuberculosis. It would be quite presumptuous for those, not experienced, to attempt to diagnose these cases. Nevertheless I am afraid that clinicians are erring on the other side equally as far. Only too often we accept the x-ray reports of the roentgenologist without taking the trouble to ask for the plate and attempt for ourselves to determine the extent of the damage existing in the lung. The result of this is, that as the months go by a series of x-ray studies are made and we have a very vague and indefinite idea concerning the improvement, retrogression or progression of the case. As Dr. Menville said, there must be team work on the part of the x-ray man and clinician if we are not to diagnose improperly and note the progress of these cases. Certainly we should not merely take reports of the x-ray plates from the roentgenologist and hope to treat intelligently the patients and determine whether they are improving or not.

All of us know that if we take the trouble to

look at a urinary sediment, for example, even though we are not adept in describing the pre-formed bodies found in the sediment, nevertheless we know that as we look at it from time to time we derive a certain amount of information that the best laboratory cannot give to us. Not that we are able to determine all details expertly but we can definitely see some change no one has the power to describe adequately by words; especially if the first picture is called to our attention and if we cooperate. I think then we should also insist that the clinician should make a definite effort to get the x-ray plates and bring them to the wards or the office in order to study them and arrive at an intelligent appraisal of the status quo of the patient's condition.

Another thing that has to be stressed to a great degree is the fact that we must insist that the clinician should study the x-ray plates in order to see the very small insignificant lesions of incipient or minimal tuberculosis. If clinicians will learn to know that these small, insignificant looking, vague, hazy shadows are the forerunners of serious devastating disease in months and years to come, they will awaken to the fact that they must first of all get more x-ray pictures, place greater reliance upon them and insist that when they get them to study them and learn to appreciate the infinitesimal changes that are to be found on the x-ray plates.

Finally, the clinician must constantly insist to himself that the day has come when no matter how healthy the individual seems to be, such an individual can definitely have active pulmonary tuberculosis. Robustness and the so-called "picture of health" no longer should be accepted at its face value since we know that for many years pulmonary tuberculosis can pursue an active course and still be entirely asymptomatic. It is true that the purpose of the physician is to find the disease and educate the patient and the public to the dangers of pulmonary tuberculosis but he has another duty to perform and that is to inform himself and constantly urge himself, even when he feels most skeptical, particularly in the face of good health and very vague and hazy shadows, that here is a patient who has the makings of a case of clinical pulmonary tuberculosis in the years to come unless he deliberately takes the situation in hand and demands of this patient such care and consideration of his future as he would if he found tubercle bacillus and signs of activity in the x-ray plates.

Dr. J. L. Wilson (In conclusion): I think that the points brought out by Dr. Menville and Dr. Hull all indicate one thing for the future; that we are going to have to do as Dr. Myers of Minnesota suggested, consider every young individual with positive tuberculin as a potential case of tuberculosis. At present this sounds rather extreme, but the incidence of the reaction to tu-

berculin is diminishing steadily. The time will come when positive tuberculin will be no more common than positive Wassermann at present. Then we shall have to look on infected individuals as potential cases of tuberculosis, to keep under medical supervision, if not under active treatment. The medical profession will have to back measures to find these positive reactors. All such measures, whether mass surveys or surveys by doctors in their own offices, will lead to the care of these individuals by the doctor and eventually to prevention and treatment in the early stages, pre-clinical stages, of pulmonary tuberculosis.

---

## THE MORTALITY OF THYROID DISEASE IN A NON-ENDEMIC AREA\*

### AN ANALYSIS OF 103 CONSECUTIVE DEATHS, WITH A SPECIAL NOTE ON THE LIVER FACTOR

FREDERICK FITZHERBERT BOYCE, M. D.†

NEW ORLEANS

Over the ten and a half year period ending July 1, 1937, 817 patients with thyroid disease have been operated on at Charity Hospital of Louisiana at New Orleans with 44 deaths, a mortality of 5.4 per cent (Table 1). It seems scarcely necessary to

TABLE 1  
INCIDENCE AND MORTALITY OF SURGICAL THYROID DISEASE AT CHARITY HOSPITAL IN NEW ORLEANS

	Cases	Deaths	Percentage
Total cases .....	817	44	5.40
Non-toxic .....	464	11	2.37
Toxic .....	353	33	9.35
White .....	414	16	3.86
Negro .....	403	28	6.94
Male .....	93	14	15.0
Female .....	724	30	4.16

point out that this is a very high mortality. Moreover, the contention that it does not represent the true situation in this community cannot be substantiated.

Dr. J. M. Batchelor, Superintendent of Public Health in New Orleans, has very kindly supplied me with the local statistics

---

\*Read before the Orleans Parish Medical Society May 8, 1939.

†From the Department of Surgery of the School of Medicine of Louisiana State University, and from Charity Hospital of Louisiana in New Orleans.

for the period covered by this study, and a comparison of the New Orleans death rate with the national death rate supplies interesting if discouraging reading (Table 2).

TABLE 2  
DEATH RATES OF THYROID DISEASE PER  
100,000 POPULATION

	1933	1934	1935	1936	1937	1938
Toxic						
United States .....	2.7	2.8	2.8	3.0	2.9	
New Orleans .....	2.874	3.030	4.780	3.732	2.519	4.206
Non-Toxic						
United States .....	0.2	0.2	0.2	0.2	0.2	
New Orleans .....	1.232	0.404	1.593	1.571	1.162	1.338

From 1933 through 1937 the death rate for toxic thyroid disease in this community was considerably higher in most years than the national rate. It was also very high in 1938, for which year the national figures are not immediately available, and if the trend apparent for the first three months of the current year continues, statisticians estimate that it will be equally high for 1939. The figures for non-toxic disease are even more amazing. In not a single one of the years under discussion does the national death rate even approximate the local death rate.

Dr. Batchelor has also supplied me with certain details of the 284 thyroid deaths which occurred in New Orleans from January 1, 1927, through March 1, 1939, and I have for comparison with them the 103 deaths (surgical and non-surgical) which occurred at Charity Hospital during that same period (Table 3). It is surprising to

TABLE 3  
COMPARISON OF THYROID DEATHS IN CHARITY  
HOSPITAL AND IN NEW ORLEANS

January 1, 1927-March 15, 1939

	Charity Hospital	New Orleans
Total deaths .....	103	284
Toxic .....	89	219
Non-toxic .....	14	65
White .....	36	193
Negro .....	67	91
Male .....	27	46
Female .....	76	238

find that during this time not even half of the thyroid deaths in the city occurred at the large public hospital where, for various reasons, one might not unreasonably expect to find most of them. Evidently other hospitals, for which I do not have the figures, are providing their full share of the local mortality, aside from the deaths

which undoubtedly are occurring outside of hospitals. Regardless of where the deaths occur, however, and whether they follow surgery or do not, they are thyroid deaths, and as such go to make up the thyroid mortality of this community.

LACK OF OPPORTUNITY TO STUDY THE DISEASE  
THE CHIEF CAUSE OF THE THYROID MORTALITY  
IN A NON-ENDEMIC AREA

No one with any knowledge of thyroid disease will be surprised that the death rate here is higher than it is in such cities, let us say, as Boston or Cleveland or St. Louis, though he may be surprised that it is so much higher. It is true that public health surveys have shown that the incidence of goiter in certain scattered portions of Louisiana is as high as it is anywhere in the world, but for all practical purposes this is a non-endemic area, and in that fact lies the chief though by no means the only reason for our excessive mortality.

The mortality for thyroid disease in Charity Hospital, and I have no doubt that the same reason holds for other hospitals in the city, is high because no surgeon and no internist can see enough of the disease to become really familiar with it. The almost fractional mortality reported from such centers as the Crile Clinic or the Lahey Clinic or the Mayo Clinic, and by such individual surgeons as DeCourcy, Richter, the Bartletts, Heyd and others, is being achieved in very large groups of cases by men who see thyroid disease as part of their daily practice. Equally important, their assistants and anesthetists and nurses also see it daily.

That is not the situation here. Sixty-five surgeons operated on the 817 patients handled during the ten and a half year period under discussion at Charity Hospital, and a great many of them had their losses. The largest number of operations performed by any one surgeon, incidentally without a death, was 88. Another surgeon performed 61 operations. But at the other end of the list are 14 surgeons with one case apiece, and six others with two cases apiece. One cannot learn a great deal about thyroid disease even from 88 cases, nor does a zero

mortality in that number of cases prove anything at all about the general death rate of the community. The important consideration is that we are undoubtedly losing patients because we do not see enough of them to become familiar with a treacherous and insidious disease which internists and surgeons fear even when they are widely experienced in it. They fear it, for that matter, because they are experienced.

Because of the limited time at my disposal, I shall confine my discussion of thyroid disease to four special points: the negro mortality, the non-surgical mortality, thyroid crisis, and the liver factor in thyroid disease. The other very interesting considerations inherent in this series of 103 deaths are being reported elsewhere.<sup>1</sup>

#### THYROID MORTALITY IN THE NEGRO

In previous communications,<sup>2, 3</sup> I am afraid without much elucidation of the question, we have commented upon the very high thyroid mortality in the negro. That trend is definitely continuing in the cases under discussion. As our figures show (Table 1) goiter shows approximately the same general incidence in the white and colored races. Toxic disease is less frequent in the negro (Table 4) though by no

TABLE 4

#### DISTRIBUTION OF TOXIC THYROID DISEASE AT CHARITY HOSPITAL IN NEW ORLEANS

January 1, 1927-July 1, 1937

	Cases	Deaths	Percentage
Total .....	353	33	9.35
White .....	202	14	6.93
Negro .....	151	19	12.58
Male .....	38	8	20.53
Female .....	315	25	7.93
White male .....	23	3	13.04
Negro male .....	15	5	33.3
White female .....	179	11	6.14
Negro female .....	136	14	10.3

means unusual. It is, however, disproportionately infrequent in the negro male, in whom by any criteria the mortality is really shocking.

Why these disproportions should exist and should be increasing, as they seem to be, baffles explanation. The natural carelessness of the negro, and his tendency to ignore any disease in which pain is not an initial feature, may furnish a partial ex-

planation. The disease may appear with greater intensity in hosts who have lost their native immunity. Perhaps the most reasonable explanation, as we shall point out in our discussion of the liver factor, is that the duration of the disease is longer in the negro than in the white patient. The catch in all of these explanations, however, is that they in no way explain the mortality in negro males, since they operate equally for both men and women.

Of the 103 consecutive deaths at Charity Hospital (Table 3) 89 were toxic and 14 non-toxic. The latter group I shall not discuss except to say that 10 of the 13 surgical deaths occurred soon after operation and were due to hemorrhage, shock, and respiratory depression. Most of the patients were not particularly good risks, though that fact does not seem to have accounted for most of the deaths. It is interesting, though I do not know that it is anything but a chance coincidence, that males, and particularly negro males, again furnish an undue proportion of the deaths.

#### NON-SURGICAL DEATHS

Of the 89 toxic deaths, 40 were surgical and 49 non-surgical, and 40 of the 49 non-surgical deaths were concentrated in the period beginning in 1934. Why this should be I do not know. I am impressed by the yearly distribution, however, because when we began to study thyroid disease in 1933,<sup>4</sup> there were so few medical deaths from it in Charity Hospital that we did not consider them worth investigating. That is no longer the situation there, and I am sorry that I do not know the situation for other hospitals in the city in this regard.

Some of the non-surgical deaths occurred in patients who were admitted very ill, in a few instances actually moribund. Some occurred in patients who refused surgery or who would not cooperate in treatment. The physical conditions prevalent at Charity Hospital during the last two and a half years have certainly contributed to some of these deaths, although they contributed equally to some of the surgical deaths. The noise and confusion incident to the demolition of the old hospital and



the construction of the new building, and the overcrowding of the negro wards in particular, have not provided a propitious environment for the care of toxic thyroid subjects.

With due regard for all of these reasons, on the other hand, the conclusion is inescapable that most of these patients died because they had permitted their disease to continue too long or because they had been treated medically over too long a period of time. Some of them had been in and out of the hospital for as long as ten years. Some of them had been in the hospital for three months or more when death finally occurred. Some of them were being prepared for surgery, it is true, but most of them were being treated medically, or, to judge from the records, were being submitted to no systematic plan of treatment.

#### THYROID CRISIS

That 33 of the 49 non-surgical deaths were due to crisis, as compared with 23 of the 40 surgical deaths, is undoubtedly significant. Many of the surgical deaths from crisis occurred in badly prepared patients, who were operated on at the wrong time. One or two patients died of crisis on the surgical wards as they were being prepared for operation. Most of the non-surgical deaths from crisis occurred on the medical wards, in patients for whom surgery does not seem to have been contemplated, and in that fact lies the warning of these fatalities.

Toxic thyroid patients literally stand in jeopardy every hour. They do not tolerate the mere act of living. They react badly to the psychic trauma of life, and to its inevitable emotional disturbances. The most trivial intercurrent illness or accident, as case after case in this group proves, is enough to destroy their delicate balance and to throw them into crises which may readily prove fatal. If such patients are to be treated medically over long periods of time, every endeavor should be made to protect them against life. In particular, as several cases prove, non-thyroid surgery should never be done on them; the fact that such illnesses and accidents may occur and such surgery may become necessary at any time

in any of these patients would seem to be an additional reason for submitting them to thyroidectomy without delay.

The fact that 68 per cent of the crises occurred in the six-months period from May through October, I do not think significant. We are acclimated to heat and humidity here, and are not affected by them as are patients in colder climates. Wilensky<sup>5</sup> has just pointed that out. Furthermore, the admissions to Charity Hospital, particularly the negro admissions, are always heavier in the summer months than during the winter months, as many a member of the teaching staffs of our two schools has had reason to lament, and naturally more patients will die at a time when more patients are in the hospital. Examination of the individual records will show that in a large number of cases improper management or sheer neglect is a better explanation for the crisis than is hot weather.

#### ESTIMATE OF TOXICITY

The whole discussion really simmers down to the fact that in perhaps the largest proportion of these non-surgical deaths, just as in a great many surgical deaths, the toxicity of the individual patient was either not realized at all or was under-estimated. Diarrhea, vomiting, or both, enormous weight losses, progressive exophthalmos, jaundice, psychoses, emotional instability, failure to respond to adequate iugolization, increases in the basal metabolic rate under proper treatment, these and similar findings should have left no doubt in many cases of the seriousness of the disease under observation. A realization of the intensity of the toxicity, in turn, should have been followed by more intensive measures to control it before it passed beyond control. At least one case in the series, too, proves the risk of operation by a surgeon who sees the patient for the first time after she is prepared for operation and who therefore has no conception of her initial toxicity.

#### THE RISKS OF LONG-CONTINUED TOXICITY

If one accepts Hertzler's<sup>6</sup> conception of all thyroid disease as one continuous disease process, and his further contention that

even a non-toxic goiter is never truly innocent, the long duration of many of the goiters in this group of deaths is very significant. If one accepts this theory of thyroid disease, one must arrive at the conclusion that many of the patients in this series had been suffering from latent if not active toxicity for very long periods of time. The remedy for the situation seems equally clear, the surgical removal of the goiter preferably before it becomes toxic, certainly immediately after toxic manifestations have made their appearance.

Long-continued toxicity is known to give rise to visceral changes, chief of which are cardiac disease and liver damage. The cardiac aspects of the question time does not permit me to discuss, except to point out the soundness of Hertzler's observation that all thyroid patients who are not operated on and who live long enough will eventually die cardiac deaths. Lahey's<sup>7</sup> excellent surgical results in thyrocardiac subjects supply the clearcut remedy for this particular phase of the thyroid mortality.

#### THE LIVER FACTOR IN THYROID DISEASE

The evidence which now exists as to the importance of the liver factor in toxic thyroid disease, and particularly in thyroid crisis, makes extended proof unnecessary here. Surprisingly little attention is paid to it, however, by physicians in general, and in many of the important texts it is almost overlooked. My own idea is that the many clinical, pathologic and experimental studies<sup>8-11</sup> which have been made of it all go to prove the urgent necessity of operating on thyroid patients before their visceral state becomes irreversible.

In 23 of these 103 fatal cases postmortem examination was made. Microscopic study of the liver tissue was omitted in two instances, and in three of the remaining 21 cases there was no gross or microscopic evidence of abnormality. But in the other 18 cases the pathologic changes included cirrhosis and toxic hepatitis in one case each; congestive changes and degenerative changes in two cases each; and fatty infiltrative changes in 12 cases. Other investi-

gators have pointed out that there is no standard pattern of pathologic changes<sup>8</sup> in these cases, but most reports show, as does this one, that fatty infiltration of the liver is the most common finding.

Our findings in our studies of thyroid patients by the Quick liver function test bear out these postmortem findings. It was used in 11 of the 103 fatal cases (Table 5),

TABLE 5  
VALUES (IN PERCENTAGES OF NORMAL) FOR  
INITIAL QUICK TEST OF LIVER FUNCTION  
IN 11 FATAL CASES

Case	Value	Cause of Death
1	92.6	Tuberculous meningitis
2*	81.3	Crisis
3**	75.6	Postoperative storm
4	71.5	Decompression for progressive exophthalmos, following two lobectomies
5	70.5	Cardiac, after lobectomy and later amputation of leg for embolism
6	65.0	Probably respiratory, postoperative; cause not clear
7	46.5	Crisis
8	40.6	Cardiac, postoperative
9	35.5	Postoperative storm
10	32.8	Crisis
11	29.7	Crisis

\*After liberal use of glucose.

\*\*After lugolization.

in only one of which the admission values were approximately normal. In only two of the other 10 cases did the patients respond adequately to preparation; in the remaining eight cases they did not respond, or the therapy itself was inadequate. Whatever the reason, the fatal results could easily have been anticipated.

Our collected average values (Table 6),

TABLE 6  
AVERAGE ADMISSION VALUES FOR QUICK TEST (IN  
PERCENTAGES OF NORMAL) IN  
THYROID DISEASE

Diffuse .....	83.2
Diffuse toxic .....	57.4
Nodular .....	77.7
Nodular toxic .....	55.6
Control .....	100.0

57.4 and 55.6 per cent of normal for toxic diffuse and toxic nodular disease, leave no doubt of the hepatic damage which the toxic state induces. Such damage cannot be ignored with safety. Our studies, which are corroborated by those made at the Lahey Clinic with this test, all prove the marked drop which occurs in liver function after thyroid surgery, as well as after any other variety. A properly prepared patient has a less sharp drop, and, if postoperative

therapy is adequate, is further bolstered against it until the effect of the anesthesia and the operative trauma has passed. A patient who has a low admission value, and who is improperly prepared for operation or does not respond to therapy, has no such protection, and a critical if not a fatal state is likely to ensue promptly. The liver factor plays quite as important a part in spontaneous crisis as in postoperative thyroid storm.

I might say, in stating my personal satisfaction with the Quick test in thyroid disease, that I was gratified to hear Dr. R. B. Cattell<sup>12</sup> on his recent visit to New Orleans say that it was being used with equal satisfaction at the Lahey Clinic.<sup>13</sup> When the test is used serially, it indicates with a high degree of accuracy the condition of the thyroid patients when they are first seen, and their response to therapy. In combination with other observations, chiefly clinical, it also indicates the optimum time for operation, and the amount of surgery which can safely be done.

In a previous communication<sup>3</sup> we have called attention to the marked discrepancies in the initial values of this test in negro and white patients (Table 7). Only in

TABLE 7  
AVERAGE VALUES FOR QUICK HIPPURIC ACID  
TEST IN THYROID DISEASE

By Racial Distribution

Type	White	Negro
Diffuse .....	91.0	77.5
Toxic diffuse .....	55.6	59.0
Nodular .....	81.0	78.1
Toxic nodular .....	64.7	54.6

toxic diffuse disease is the average value higher in the negro than in the white patient. The duration of the toxicity, latent or active, over a longer period of time perhaps furnishes the explanation of this finding in the negro subjects. If that be true, the lowered values for hepatic function may very possibly help to explain the higher negro mortality in toxic thyroid disease, though again it throws no light on the mortality in negro males.

#### LOWERING THE MORTALITY IN THYROID DISEASE

These rather rambling remarks lead very definitely to one conclusion, that the reduc-

tion of the mortality in thyroid disease must be brought about, first of all, by a reduction in the duration of the toxicity. This is most easily accomplished by an earlier resort to surgery. Eliminating the small group of patients who are doomed from the beginning, more intimate cooperation between the physician and surgeon in the management of thyroid disease would do more than any one other thing to lower its mortality. Such cooperation would bring about earlier diagnosis, a prompter resort to surgery, more careful preoperative preparation, a more accurate estimate of toxicity, and, finally, a safer amount of surgery. Undoubtedly, as a result, there would be a prompt and sharp drop in the mortality.

I have less hesitancy in presenting this paper because I myself contributed four of the fatalities on which it is based. Twenty-eight surgeons were responsible for the 53 surgical deaths, one for seven; four, like myself, for four each, and, at the other end, nineteen for one death each. I do not think these figures prove anything in particular except that none of us has had a very wide experience with thyroid disease.

That being the case, it might be a wise and profitable plan for us to pool our experience. I should like to see this Society undertake such a cooperative effort by the appointment of a standing committee, representing the various hospitals of this city, as well as the public health officials, and charged with the task of studying thyroid disease in this community and reporting upon it at intervals in open meetings or in our official publication. Such a continuing analysis would be a healthy thing for each of us individually, and would undoubtedly in a very short time be reflected in a distinct improvement in our mortality.

#### SUMMARY

1. The unusually high mortality of thyroid disease in a non-endemic area, as evidenced by the statistics from the New Orleans Charity Hospital, is chiefly due to the fact that no single physician can possibly have a very large experience with it.

2. The negro mortality, particularly the negro male mortality, is excessively high in New Orleans.

3. An unduly large proportion of patients in the toxic thyroid group die without surgery, chiefly, it would seem, because of unreasonably long trials of medical treatment and failure in many cases to realize the intensity of the toxicity.

4. Thyroid crisis is the most frequent cause of death in both the surgical and the non-surgical groups. Its occurrence is an ever-present possibility in toxic thyroid disease.

5. Prompt surgery would seem to be the most reasonable method of reducing the duration of toxicity, and thus reducing the mortality.

6. Liver damage is a very important but a largely overlooked factor in the thyroid mortality.

7. The Quick hippuric acid test is a simple and accurate method of estimating the hepatic state of the toxic thyroid patient, and of following the progress of therapy.

8. It is suggested that in a non-endemic area such as New Orleans, a continuing study of thyroid disease would be a valuable contribution to the reduction of the very high mortality.

#### REFERENCES

1. Boyce, F. F.: Factors in the mortality of thyroid disease in a non-endemic area, with a note on the value of the Quick test of liver function in the estimation of hepatic damage. (In press).
2. Maes, U., Boyce, F. F., and McFetridge, E. M.: Further observations on thyroid disease in a non-endemic area. An analysis of 662 surgical cases and 16 non-surgical deaths. *Ann. Surg.*, 105:700, 1937.
3. Boyce, F. F. and McFetridge, E. M.: Studies of hepatic function by the Quick hippuric acid test. II. Thyroid disease. *Arch. Surg.*, 37:427, 1938.
4. Maes, U., Boyce, F. F., and McFetridge, E. M.: Clinical problems of thyroid disease in a non-endemic area. *Am. J. Surg.*, 24:232, 1934.
5. Wilensky, A. O.: Occurrence, distribution and pathogenesis of so-called liver death and/or the hepatorenal syndrome. *Arch. Surg.*, 38:625, 1939.
6. Hertzler, A. E.: Pathogenesis of goiter considered as one continuous disease process. *Arch. Surg.*, 16:61, 1928.
7. Lahey, F. H.: End-results in thyrocardiacs. *Ann. Surg.*, 90:750, 1929.
8. Beaver, D. C., and Pemberton, J. deJ.: Pathologic anatomy of liver in exophthalmic goiter. *Ann. Int. Med.*, 7:687, 1933.
9. Cameron, G. R., and Karunaratne, A. E.: Liver changes in exophthalmic goiter. *J. Path. & Bacteriol.*, 41:267, 1935.

10. Lahey, F. H.: Critical thyroid states, their diagnosis and treatment. *S. Clin. N. America*, 16:1521, 1936.
11. Weller, V. V.: Hepatic pathology in exophthalmic goiter. *Ann. Int. Med.*, 7:543, 1933.
12. Cattell, R. B.: Lecture before students of Louisiana State University School of Medicine, March 29, 1939.
13. Bartels, E. C., and Perkin, H. J.: Liver function in hyperthyroidism as determined by the hippuric acid test. *New England J. Med.*, 216:1051, 1937.

#### DISCUSSION

Dr. Allan Eustis (New Orleans): When Dr. Boyce asked me to open the discussion of his paper, from his title, I was at a loss to know what to say. However, after reading his paper, I thought it might be wise to speak a few words further on the dangers of liver dysfunction; as you know this has, for a great many years, been my hobby.

Some of the older members may remember a symposium we had in the old Elks' Building; a symposium on thyroid disease in which Bill Haggard of Nashville and Charles Mayo of Rochester took part. In the discussion I said I thought it well to consider intestinal toxins and liver in this condition. I never will forget Sam Clark said, "You had your nerve." I think we can not get away from that fact though. I mentioned two cases of hyperthyroidism with tachycardia. They were relieved and one is living today without any return of the disease, simply by treating associated intestinal toxemia.

I have a few slides I wish to show.

Dr. Boyce stated that eleven of his cases had the Quick liver function test performed on them. I think Ehrlich's aldehyde test is the most delicate test for liver function that we have at present. The test depends on getting bile into the intestinal canal where urobilin is reduced to urobilinogen. Part remains in the feces, but part is reabsorbed and goes back to the liver. However, when the liver is damaged instead of urobilinogen going back to bilirubin it is absorbed in the general circulation and occurs in the urine. The test is positive when a rose red color is obtained. Wallace and Diamond have devised a quantitative test. I see no reason for this. Anything less than plus 3 is not significant.

This slide shows an analysis of 500 patients of routine office cases, not thyroid but general office cases, on which the aldehyde test was performed. As it was positive in only 6 per cent of the cases you may say it has no value. On the contrary, however, in these thyroid cases, it is often a life saver.

The next slide shows the effect of indican on aldehyde reaction. This is a slide I made in 1938.

Here is a slide I made today which did not come out very well. This patient has a carcinoma of the pancreas and is in Touro now, and has painless jaundice of two months' standing. There was a negative aldehyde test when first seen. After she was operated on (cholecysto-jejunostomy), as soon

as bile got into the intestines, she promptly showed a positive aldehyde test and as the liver improved in function it came down to normal. This is an interesting case because it brings out the original idea of Bauer, that in order to have the test you must have the bile getting into the intestinal canal. This test has been used by me for years but it is only now beginning to be used generally. I do not know how many thousands of tests I have made.

Another point is in reference to preparing for operation. All thyroid patients do not utilize the same amount of iodine. I reported one case where it was shown that before we got any improvement so that Dr. Allen could operate, it was necessary to give 90 drops of Lugol's solution three times a day before we found metallic iodine in the urine. As soon as there was iodine in the urine he showed clinical improvement.

—o—

## PERITENDINITIS CALCAREA\*

SIDNEY M. COPLAND, M. D.†

AND

MARSHALL MICHEL, M. D.†

NEW ORLEANS

Peritendinitis calcarea is a definite disease entity possessing a typical clinical picture and is characterized by areas of calcification in the soft tissues as ligaments, tendons, bursae, articular capsules and surrounding connective tissue. Although the literature on this entity is not great, nevertheless it has received considerable attention from the German and Scandinavian writers. Again, many vague and rare conditions as Pellegrini-Stieda syndrome, deQuervain's disease and commoner entities as bursitis calcarea are in all probability local manifestations of peritendinitis calcarea. This latter term was originally employed by Sandstrom<sup>1</sup> of Stockholm, Sweden in 1930 but as indicated above, the various local manifestations were discussed

and partially described at an earlier date by Milian,<sup>2</sup> Schmidt,<sup>3</sup> Stieda,<sup>4</sup> Stegemann<sup>5,6</sup> and others; but these earlier clinicians, with the possible exception of Stegemann, did not realize that they were contending with a specific entity.

The disease produces a typical pathologic and roentgenologic picture but a variable clinical one. The etiology is not known, some cases appearing to be idiopathic while others are secondary to trauma. It is significant that in our series of 10 cases, the right side was always the one affected. No evidence of bacterial invasion has ever been found in cases of peritendinitis. Grossly, the pathologic specimens, at times, mimic gouty deposits, but no urates have ever been isolated from these lime deposits, the elements predominating being calcium carbonate and a mixture of calcium, phosphoric acid, and some protein-like substance. Tuberculosis and syphilis have been thought of as possible causative factors but minute investigation has never offered any basis for substantiation. The possibility of an acute rheumatic background is unlikely for many cases that occur in advanced years with only a single joint involved surely do not impress one as being a rheumatic syndrome. It is possible that embarrassed vascularization of tendons and peritendinous tissues in some individuals marks these people as being potential candidates for peritendinitis.

### PATHOLOGY

The basic pathologic characteristic of the entity is the deposition of calcium in the soft tissues about joints as tendons, articular capsules and bursae. At this point it is important to note that the term, "calcareous bursitis", which some authors claim is a misnomer, is in many instances a manifestation of peritendinitis calcarea. Fault has been found with the term, "calcareous bursitis", because at operation the calcium deposits have been isolated in the soft parts about the bursa rather than in the bursa per se. Peritendinitis calcarea in the hip has been called calcareous bursitis of the subtrochanteric bursa (see

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 26, 1939.

†From the Department of Surgery, Touro Infirmary, New Orleans, La.

x-rays of case 1). Carnett and Case<sup>7</sup> operated on 50 patients with calcareous bursitis of the subdeltoid bursa and found



Fig. 1. Demonstration of the deposition of calcium about the trochanter of hip, a condition causing much pain.

such a picture as suggested above, namely calcium deposits situated beneath the bursa or under and in the supraspinatus tendon. Incidentally, it is of etiologic significance to note that in their cases, they did not see any evidence of recently torn fibers or blood clots in the supraspinatus tendon.

The incidence of peritendinitis is common; we have encountered 10 cases in Touro Infirmary during the past 12 months. Again, Sandstrom<sup>1</sup> has personally observed 329 cases since 1930. It is of interest to note that this condition may be one of the causes of sore arms in base-ball players.

JOINTS AFFECTED

Any joint may be involved, the local symptoms being similar in all cases. In our small series only three different joints, the shoulder, hip and wrist, were involved,

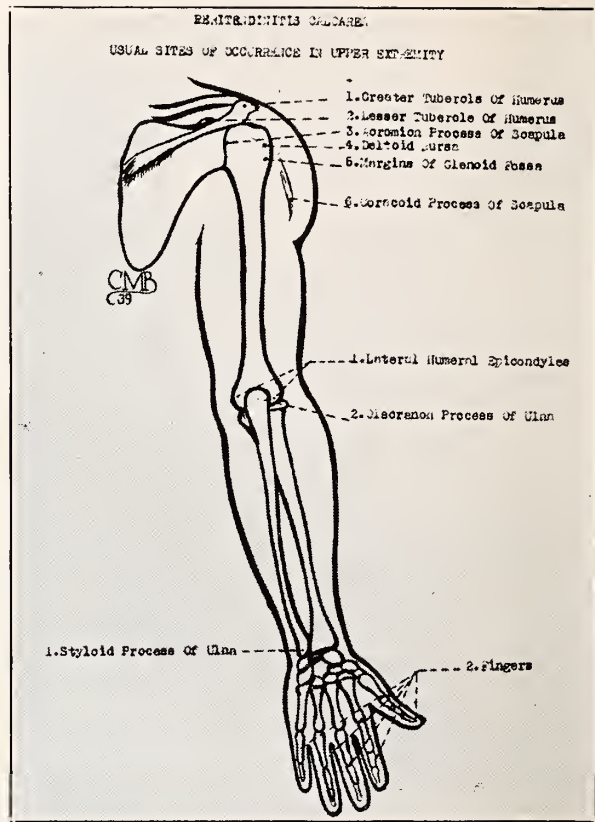


Fig. 2. Sites of predilection of peritendinitis calcarea in the upper extremity.

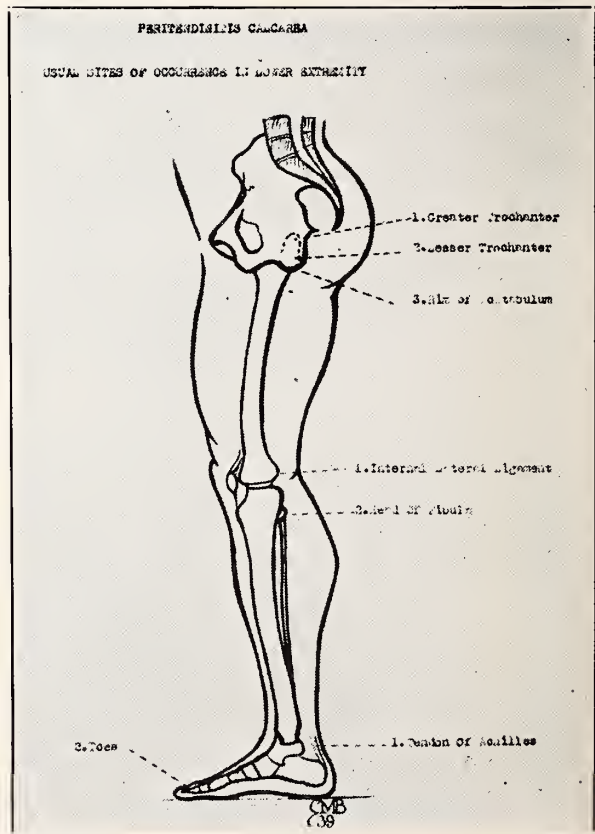


Fig. 3. Sites of predilection of peritendinitis calcarea in the lower extremity.

but Figures 2 and 3 show the many various sites. The shoulder is by far the most frequent locale, being about five times more common than is the hip, which is second in frequency. Calcification of the internal lateral ligament of the knee is known as Pellegrini-Stieda's disease and is a rare entity, only 54 cases having been reported in the American literature through 1933. One case in our series (see x-ray fig. 4)

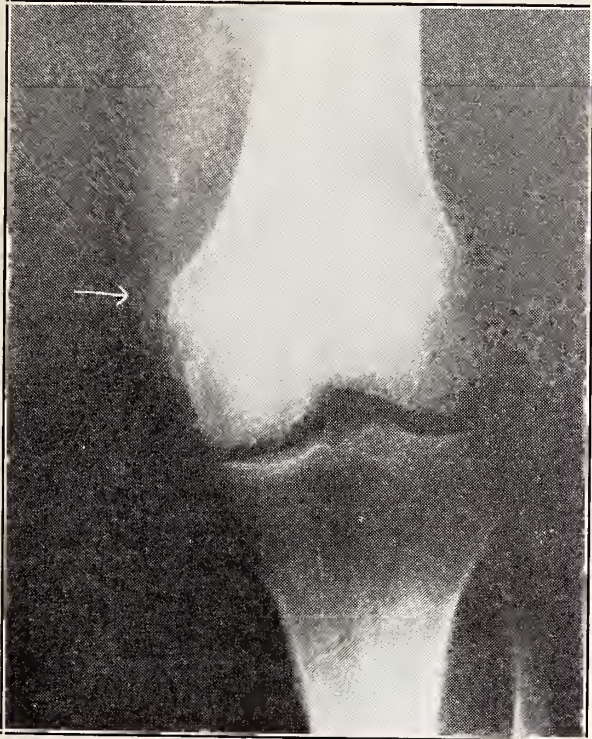


Fig. 4. Case of Pellegrini-Stieda's disease. We think entirely a type of peritendinitis calcarea.

is typical; the history and symptoms do not differ from those of other cases of peritendinitis calcarea and it is our impression that Pellegrini-Stieda's syndrome is merely a local type of peritendinitis.

The calcium deposits per se vary in their appearance, one or two large masses being present in some cases and in contrast the picture may present many small, hazy, indistinct granules. Macroscopically, the deposits consist of a gruel-like substance in fibrous tissue. Microscopically, the examination reveals an inflammatory or necrotic tissue with deposits of calcium carbonate or phosphate. The deposits do not mimic bony structures for trabeculation is absent.

The age incidence of peritendinitis varies greatly, the disease being encountered from

the third through the sixth decades of life. The average age in our series was 32 years, but Sandstrom reports it as occurring later in life, usually the fifth and sixth decades. Sex does not appear to play any significant role in the incidence, both sexes being equally prone.

#### CLASSIFICATION

The most rational clinical classification of peritendinitis calcarea is as follows: (1) Acute; (2) chronic; (3) latent or dormant.

#### SIGNS AND SYMPTOMS

The signs and symptoms of the acute type are both local and systemic, the symptoms being pathognomonic of an acute inflammation. These are:

a. Pain: This is the predominant symptom and is the reason why most persons consult a physician. The pain can be most excruciating, one of our cases being tentatively diagnosed as an acute osteomyelitis until the x-ray revealed the true pathology. Opiates are frequently necessary to control this pain in hyperacute cases.

b. Loss of Function: Active and passive motion is restricted in most cases, the active being more so than the passive. Reflex muscle spasm in an effort physiologically to splint the affected area is the probable explanation of this phenomenon.

c. Tenderness: This varies in severity, depending upon the part involved; the more superficial the part, the more pronounced the tenderness. At times tenderness may be so exquisite, that the weight of the clothes causes pain.

d. Swelling: This is the most erratic of all the local manifestations, being totally absent in many cases.

Systematically one notes that fever is often present; however, its absence does not rule out peritendinitis. The sedimentation rate is usually more rapid, Sandstrom<sup>1</sup> reporting only five normals in 75 acute cases.

The commonest type of peritendinitis is the chronic form that undergoes an acute exacerbation. If treated properly the prognosis is just as good as that of the acute, namely excellent.

Those cases which are silent, that is, do

not cause any discomfort and are encountered during an x-ray examination for other pathology are termed dormant or latent.

#### DIFFERENTIAL DIAGNOSIS

Gout, osteomyelitis, arthritis, interstitial calcinosis, so-called bursitis, especially subdeltoid bursitis, fractures, traumatic myositis and senile proliferative processes arising from joint capsules are to be differentiated from peritendinitis calcarea. Despite these many conditions that simulate peritendinitis, there is one means of differentiation that is virtually specific and that is the x-ray. We do not wish to disregard the well deserved attributes of physical examination, but the final word rests with the x-ray and we frankly acknowledge this fact. The x-ray diagnostic technic varies in different cases for in some individuals if overexposure occurs, thin calcium deposits will be overlooked. Frequently, oblique views are necessary as a supplement to the orthodox anteroposterior and lateral studies.

#### TREATMENT

Treatment of this entity has afforded us much satisfaction inasmuch as we were able to afford patients quick relief and to all purposes a complete cure in the majority of cases. The only patient in our series operated upon was one who deserted immediately after a diagnosis was made, no opportunity for therapy being afforded us. The basis of therapy is deep x-ray, and it is virtually a specific therapy. Not every patient is afforded quick relief but often a single application is sufficient to relieve pain in 24 to 36 hours. No case in our series required over nine exposures, the average number being only four exposures. Our dramatic results with x-ray parallel those of Sandstrom in his huge series. The dosage of x-ray employed is relatively small, our dosage as advocated by Teitelbaum,<sup>8</sup> of Touro Infirmary, is as follows: Acute cases—150 r units twice a week; chronic cases—150 r units once a week. The technic employed is: 20 milliamperes, 200 kilovolts, 50 centimeters skin target distance (.5 cu. and 1 mm. aluminum filter).

The disappearance of the calcium deposits under x-ray therapy is not uncommon. We have noticed this phenomenon in several cases (see figs. 5 and 6).



Fig. 5. Hip shown in Figure 4 after exposure to deep x-ray therapy. Note the absence of calcium deposits formerly present. All symptoms have disappeared.

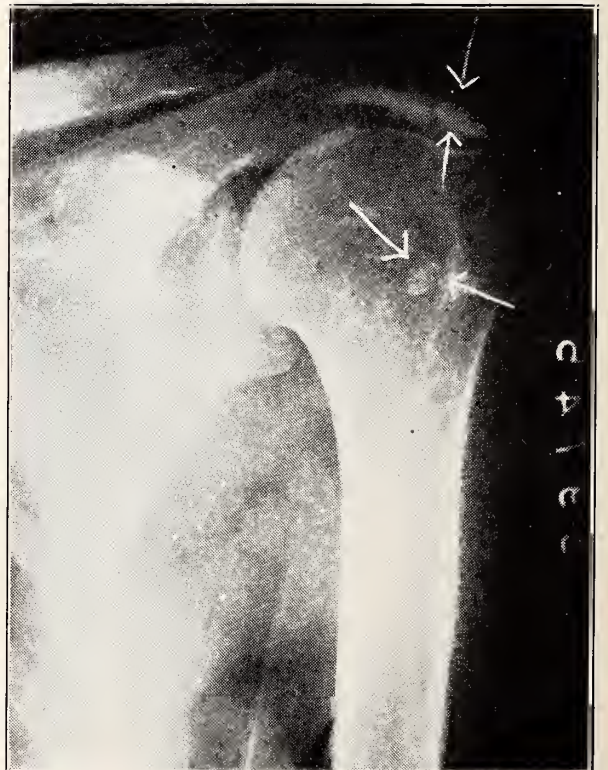


Fig. 6A. X-ray of shoulder revealing marked calcium deposits. Patient experienced great pain and loss of function.





Fig. 6B. X-ray of shoulder demonstrated in Figure 6A after deep x-ray therapy. Note that calcium deposits are markedly diminished. Function is now normal.

#### SUMMARY

Peritendinitis calcarea, a definite disease entity of unknown etiology, is relatively frequent. X-ray therapy is comparatively specific. Bursitis calcarea is most probably a manifestation of this disease. Various joints may be the site of the pathology and the age incidence is widespread.

#### REFERENCES

1. Sandstrom, Carl: Peritendinitis calcarea: A common disease of middle life: Its diagnosis, pathology and treatment, *Am. J. Roentgenol.*, 40:1, 1938.
2. Milian, G., et Neveu: Hygromas Calcifiés. *Bull. et Mém. Soc. Anat. de Paris*, 6 S., 2, 827-829, 1900.
3. Schmitt, J.: Bursitis calcarea am Epicondylus externus humeri. Ein Beitrag zur Pathogenese der Epicondylitis. *Arch. f. orthop. u. Unfall-Chir.*, 19:215, 1921.
4. Stieda, A., and Bergemann: Bursitis of shoulder accompanied by calcium deposits. *München. med. Wehnschr.*, 55:2699, 1908.
5. Stegemann, H.: Deposits of calcium around joints, *Arch. f. klin. Chir.*, 125:718, 1923.
6. Stegemann, H.: Roentgenologie study of little known hip condition, *Arch. f. klin. Chir.*, 162:63, 1930.
7. Carnett, J. B., and Case, E. A.: A clinical and pathological discussion of so-called subacromial bursitis, *Surg. Clin. N. Amer.*, 9:1107, 1929.
8. Teitelbaum, M. D.: Personal communication.
9. Carnett, J. B.: The calcareous deposits of so-called calcifying subacromial bursitis, *Surg. Gynec. Obst.*, 41:401, 1925.

#### DISCUSSION

Dr. Michael DeBakey (New Orleans): Dr. Copland is to be commended upon his excellent but

succinct presentation of a condition which is not infrequent. The subject has been thoroughly considered and I shall merely direct attention to an almost dramatic form of therapy which I first observed when I was a Foreign Assistant in Leriche's Clinic in Strasbourg. This therapeutic measure consists of procaine hydrochloride infiltration in the involved area. The technic of the procedure is relatively simple. The needle is inserted at the point of maximum tenderness and the surrounding tissues infiltrated with 10 c.c. of 1 per cent procaine hydrochloride solution. Within a few moments after the injection all pain and tenderness are completely relieved. The part can be moved with ease and not infrequently the relief is permanent. Occasionally it is necessary to repeat the injection. That the physiologic action of procaine hydrochloride should have a longer duration than its pharmacologic effect is rather difficult to conceive but it is a phenomenon which has been observed repeatedly. Leriche is of the opinion that this is due to the breaking of a vicious circle.

Dr. Sidney Copland (In conclusion): I have had experience with the method described by Dr. DeBakey. A man was carried into Touro, unable to walk. X-ray showed that this man did have peritendinitis of the subtrochanteric bursa. Novocain was used, in this instance 15 c.c. of a 1 per cent solution, and believe it or not, this man was not only able to support himself, but was able to walk out of the hospital immediately. However, he did have a recurrence of this pain, but was not re-injected. He was exposed to x-ray.

It is a remarkable thing that only a few years ago this was considered as an operative case, operative interference being necessary to remove these calcium deposits. We still find cases at times which will necessitate surgery, but conservative methods should be given these patients before operative interference is attempted. It does seem that x-ray is a panacea for many disorders; however, in this particular instance, we do feel that it is of great benefit to these patients.

---

## SCHISTOSOMIASIS\*

### REPORT OF A CASE

G. H. HAUSER, M. D.

NEW ORLEANS

The purpose of this paper is to call to your attention the existence of cases of schistosomiasis in the United States and to discuss briefly the various types of the disease. Interest in the nature of the disease

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

was aroused by the accidental finding of a case of schistosomiasis in a Japanese patient several years ago which has not been reported but is included in this paper as a matter of record.

In man three forms of this disease have been described, namely; schistosomiasis hematobium, schistosomiasis mansoni, and schistosomiasis japonicum. All three are caused by trematode worms or blood flukes.

#### SCHISTOSOMIASIS HEMATOBIIUM

The worm responsible for the disease was first recovered by Bilharg (1851) from the mesenteric veins of a native of Cairo and was shortly afterwards demonstrated as the cause of hematuria in a native who was discharging terminal spined eggs in the urine.

The original focus of vesical schistosomiasis was probably the Nile Valley, and a study of mummies of ancient Egypt indicates that this was a common disease in the Nile Valley several thousand years ago. Many of the soldiers of Napoleon suffered from the disease during the Egyptian campaign. The disease today exists, in addition to this locality, in the greater part of Africa, in the Southern tip of Europe, in Western Asia, and in the islands off the eastern coast of Africa.

The worms live as adults primarily in the vesical and pelvic plexuses of the venous circulation, less commonly in the portal blood stream, and rarely in other venules. The sexes are separate. The male is the shorter, stouter organism, measuring 10 to 15 mm. in length and 0.8 to 1 mm. in breadth. The female is long and slender, and measures 20 mm. by 0.25 mm. After fertilization the eggs are laid in the venules, the worm moving along the venules as the eggs are laid in succession, one behind the other. This process is repeated until the venule is filled with eggs, when she migrates to another venule and fills this with eggs. The process is continued over a period of several years until all available venules have been used. Due to pressure within the vessel, the piercing action of the spine and lytic action, the egg breaks through the wall of the bladder. Together

with extravasated blood, the eggs are then discharged in the urine usually at the end of micturition. The eggs are yellowish brown, possess a distinct terminal spine, and measure 112 to 170 microns by 40 to 70 microns.

On dilution with ten or more parts of water the viable eggs hatch and miracidia escape as free swimming organisms. On contact with the appropriate species of snails, and in a course of four to eight weeks, they undergo multiplication and development in its tissues with production of two generations of sporocysts, and finally fork-tailed cercariae break out of the snail in swarms. Daily discharges of cercariae may take place over a period of from ten to 75 days. Many snails have been incriminated.

On leaving the snail the cercariae swim vigorously through the water tail first, at times sinking to the bottom and then swimming back to the surface film. If human beings bathe or wade in this infected water, the cercariae come in contact with the skin most commonly at the surface film, and as the water evaporates they enter the skin for protection, casting off their tails. Their free living existence is limited at most to three days, usually 25 hours or less, during which time they are unable to feed. Skin penetration is effected by forceful ramming of the anterior ends into the skin, accompanied by the digestive action of liquids poured out by the penetration glands. Entry below the epidermis is accomplished in less than half an hour. Usually within 20 to 24 hours, the larvae have gained access to the peripheral venules through which they are passively transported to the right heart, from which they pass into the pulmonary capillaries. Some are side-tracked in peripheral lymph nodes, but usually they work their way through these into afferent blood vessels. Several days are required to squeeze their way through the pulmonary capillaries into the pulmonary venules, after which they are carried through the left heart into the systemic circulation. The majority pass into the abdominal aorta. Only those survive which get into the mes-

enteric capillaries and enter the portal circulation. In the intrahepatic portion of the portal circulation the larvae begin to feed and to grow, become sexually differentiated, move out of the liver into the inferior mesenteric veins, and eventually pass to the vesical and pelvic plexuses where they arrive one to three months after passing through the skin. The cercariae may enter by way of the mouth but are destroyed by gastric juice.

*Epidemiology:* The disease is perpetuated by infected individuals who deposit urine and feces in or near watering places containing the appropriate intermediate host. Sewerage from infected areas emptied into streams adds to the infection.

The clinical aspects of the disease may be divided into three stages: (1) The incubation period; (2) period of egg deposition and extrusion; (3) period of tissue proliferation and repair.

*Incubation Period:* This period usually lasts about three months and not less than one month, and covers the time from cutaneous exposure to the cercariae until eggs are first laid by the females. The first manifestations are due to entry of the parasites in the skin which causes irritation and itching followed by petechial hemorrhages shortly afterwards. These last usually one or two days and there are no further indications until near the end of the period when toxic symptoms appear consisting of headache, anorexia, malaise, general pains most severe in the back and extremities, fever, sweating, and often severe urticaria. The blood count shows a leukocytosis with eosinophilia, often 50 per cent or more. The liver and spleen are enlarged and tender.

*Period of Egg Deposition and Extrusion:* There may be several months between deposition of eggs and their first appearance in the urine, which usually occurs with the passage of a small amount of blood on urination. This may continue for months or years. Later, there is burning on urination, desire to urinate, bladder colic and suprapubic pain. Cystoscopic examination reveals thickening and inflammation of the mucous membrane of the urethra and bladder, with concretions of urates and oxalates

around the eggs as conglomerations in the bladder. The perivascular tissues become infiltrated with eggs surrounded by leukocytes, eosinophils and giant cells leading to abscess and tubercle formation. Most of the eggs are found in the mucosa and muscularis of the organ and some remain in the venules producing endophlebitis and thrombosis. Many of them undergo degeneration and calcification.

*Period of Tissue Proliferation and Repair:* This stage occurs following the previous one and consists of general hyperplasia of the bladder wall with fibrosis and development of "sandy patches" and secondary infection. Formation of calculi and sloughing of bladder mucosa increases and the urethra may be occluded by hyperplasia of the wall, and sloughing material and calculi in the lumen coming down from the bladder. Pyogenic infection produces discharge from the urethra, elephantiasis, and peri-urethral abscesses and fistulae. The patient becomes extremely weak, with painful micturition of blood and pus, and the patient may finally succumb to the infection. Malignant growths of the bladder are common. In many cases the eggs may be carried into the inferior mesenteric veins and produce schistosomial appendicitis, involvement of the colon, sigmoid and rectum, and the eggs may be found in the feces. The eggs and even the worms may be swept to the liver through the portal vessels and produce abscesses and tubercles with subsequent fibrosis. Rarely the eggs reach the brain and cord and produce nervous disorder.

*Diagnosis:* Specific diagnosis depends upon the identification of the eggs discharged in the urine and feces. Complement fixation test may be helpful during the latter part of the incubation period.

*Prognosis:* The prognosis is excellent to fair in treated patients; grave in untreated patients.

*Treatment:* Symptomatic treatment is of little value unless combined with chemotherapy. Specific treatment consists of the administration of sodium antimony tartrate (tartar emetic) intravenously, or foudin

intramuscularly. Complications must receive appropriate treatment.

*Prevention:* Infection appears to confer little if any immunity. Chemotherapy control is of little value. Educational campaigns, proper disposal of excreta, and general sanitation offer the best means of prevention.

#### SCHISTOSOMIASIS MANSONI

This disease is common in the Nile Delta and throughout many other parts of Africa. It is also common in northern Brazil, Venezuela, Dutch Guiana, and Puerto Rico. Occasional cases in Arabia and the Lesser Antilles have been found.

The adult worms resemble those of schistosomiasis hematobium but are somewhat smaller. The eggs have a lateral spine and measure 114 to 175 microns in length by 45 to 68 microns in transverse diameter. The mature worms are typically found in the mesenteric venules draining the large bowel and posterior segment of the ileum, occasionally in the superior mesenteric vein, vesical plexus, and intrahepatic portion of the portal vein. The eggs are laid one by one in the venules through which they soon break and migrate through the intestinal wall. The eggs escape into the lumen of the bowel and, accompanied by blood, are passed in the feces. When mixed with water the eggs hatch rapidly. The life cycle within the snail parallels that of *Schistosoma hematobium*.

The *pathology* and *symptomatology*, like schistosomiasis hematobium, are divided into three stages: (1) The incubation stage which is like that of schistosomiasis hematobium; (2) the stage of egg deposition and extrusion involving primarily the intestinal wall, the liver, and spleen. The egg extrusion is accompanied by classical schistosomiasis dysentery. This period is one of abdominal pain, frequent stools with blood and mucus, containing many lateral spined eggs. The intestinal wall becomes inflamed, thickened and fibrosed, with ulceration and abscess formation. Papillomata of the bowel mucosa are common and the mesenteric lymph nodes, liver, and spleen are enlarged. The eggs may escape

into the tissues of the lungs, pancreas, spleen, kidneys, liver, adrenals, heart, and spinal cord. (3) In the third stage of tissue proliferation and repair, there is fibrosis and thickening with narrowing of the intestinal wall. Papillomata, ulceration, malignant changes, and fistulae develop. In a small percentage of cases eggs reach the bladder and escape in the urine. Cirrhosis of the liver, enlargement of the spleen, and ascites occur.

*Diagnosis:* Diagnosis depends usually on finding the lateral spined eggs in the feces. Other helpful findings are the blood count with marked eosinophilia and the complement fixation test.

#### SCHISTOSOMIASIS JAPONICUM

This infection is confined to areas in the Far East. The disease is very common in China, some parts of Japan, and has also been found in the Philippine Islands.

The worms resemble *Schistosoma hematobium* and *Schistosoma mansoni*. The eggs measure 70 to 100 microns by 50 to 65 microns when discharged in the feces. The eggs have no terminal or lateral spine, but on the side near one end there is a depression from which there extends a small spinous process, or abbreviated spine like a curved hook in the mature egg.

The adult worm of schistosomiasis japonicum inhabits the radicles of the superior mesenteric vein draining the small intestine, where the eggs are deposited by the female and passing through the submucosa and mucosa are deposited in the lumen of the bowel together with extravasated blood. Visible eggs which are passed in the feces are usually mature and require only water to hatch and allow the miracidia to escape. On contact with the appropriate snail, these enter the flesh of the mollusk and undergo development with final liberation of fork-tailed cercariae. These cercariae on contact with the skin of mammals penetrate the skin to the capillary beds, enter the circulation, and pass through the right heart, lungs, and the left heart to the general circulation. Those

that enter the intrahepatic portal circulation proceed to feed and grow, and migrate to the venules of the superior mesenteric vessels. Within five weeks, the worms mate and the females are laying eggs. In addition to man, dogs, cats, rats, mice, cattle, and horses are naturally infected and constitute reservoirs of infection.

*Diagnosis:* Specific diagnosis depends upon finding the characteristic eggs in the feces. The complement fixation test, blood count, and history are helpful.

*Epidemiology, prognosis, treatment, and prevention* are essentially those of schistosomiasis hematobium and schistosomiasis mansoni. The pathology and symptomatology resemble schistosomiasis mansoni, but the changes, especially in the liver, spleen, and lymph nodes, are more pronounced. The mesentery and omentum frequently become thickened, binding down the colon and producing an upper and lower abdominal distention. Children are retarded in physical and mental development. Anemia is conspicuous, and mesenteric and portal thrombosis occur. Rarely eggs reach the lungs, bladder, and capillaries of the brain. The third stage may last years and be terminated by pneumonia and other bacterial infections.

#### INCIDENCE AND DISTRIBUTION

Schistosomiasis is rare in this country, but there has been an increasing number of cases reported in recent years. Goldey,<sup>1</sup> Rhia and Christensen,<sup>2</sup> Stevens,<sup>3</sup> Vermooten<sup>4</sup> and others have reported cases of schistosomiasis hematobium or urinary bilharziasis. Levine and Marin,<sup>5</sup> Hoff,<sup>6</sup> Clarke and Graef<sup>7</sup> published cases of schistosomiasis mansoni. Schistosomiasis japonicum has been reported by Hayward,<sup>8</sup> and by Greenfield and Prichard.<sup>9</sup> Cutler<sup>10</sup> reviewed the literature and found 22 cases of schistosomiasis had occurred up to 1926.

In recent years numerous cases of "schistosomiasis dermatitis" have occurred in the Great Lakes region. It is claimed that the dermatitis is caused by a non-human variety of schistosoma. Cort<sup>11</sup> studied the distribution of schistosomiasis dermatitis in Canada and the United States and

found it particularly prevalent in Minnesota, Wisconsin, Iowa and Michigan, with scattered cases in Texas and Florida. In this country, the dermatitis is contracted from wading or bathing in water polluted with the infecting cercariae of this type of schistosoma. It differs from schistosomiasis japonicum in that the lesions are primarily cutaneous and associated with a severe itch. Peacock and Voegtlin,<sup>12</sup> Edwards and Brackett,<sup>13</sup> Cort<sup>14</sup> and others have also reported cases of so-called "swimmer's itch."

#### CASE REPORT

The following case report of schistosomiasis japonicum is presented:

N. F., a male, aged 27, Japanese by birth, resident of New Orleans for the last few years, was taken acutely ill with vomiting and abdominal pain on September 6, 1929. The blood count made at that time showed a total white count of 9,000 per cm. Differential: lymphocytes, 13; neutrophils, 84; eosinophiles, 3. The urinalysis was negative.

Because of a torrential rain and flooding of the streets about the patient's residence, it was impossible to move him at once; but the following morning he was removed to Mercy Hospital and an appendectomy was performed by Dr. W. P. Gardiner. The patient made an uneventful recovery. The appendix measured 9 cm. in length and showed marked congestion of the superficial vessels. Cut section showed the wall and mucosa to be thickened and edematous, and the lumen contained blood, pus and fecal material. Throughout the wall were numerous shiny areas varying in size from one to three mm.

Microscopic examination showed acute and chronic exudative and chronic proliferative appendicitis. Numerous ova of *Schistosoma japonicum* were found in the wall of the appendix, many of which showed degeneration and calcification.

Attempts were made to obtain a specimen of feces for examination for eggs, but the patient became suspicious of some unusual findings in his case and refused to give any specimens or further history of his case.

#### SUMMARY

1. The distribution, description of parasite and life cycle, epidemiology, pathology, symptomatology, diagnosis, prognosis, treatment and prevention of the three forms of human schistosomiasis are described.

2. Non-human types of schistosomiasis present in certain parts of this country

give rise to schistosomiasis dermatitis and "swimmer's itch."

3. A case of schistosomiasis japonicum, with involvement of the appendix, is reported.

## REFERENCES

1. Goldey, A.: Vesical bilharziasis with chyluria; report of case and its cure. (*Schistosoma hematobium*), *Urol. & Cutan. Rev.*, 41:89, 1937.
2. Riba, L. W., and Christensen, F. A.: Urinary bilharziasis, *J. Urol.*, 32:529, 1934.
3. Stevens, A. R.: Schistosomiasis involvement of the upper urinary tract; report of patient with papillomata of renal pelvis, ureter and later of bladder, *Tr. Am. A. Gen.-Urin. Surg.*, 28:275, 1935.
4. Vermooten, V.: Bilharziasis of ureter and its pathognomonic roentgenographic appearance, *J. Urol.*, 38:430, 1937.
5. Levine, J., and Marin, R. A.: Schistosomiasis of appendix; case report, *J. Lab. & Clin. Med.*, 20:602, 1935.
6. Hoff, A.: Schistosomiasis; report of 2 cases, *J. A. M. A.*, 107:1375, 1936.

7. Clark, E., and Graef, I.: Chronic pulmonary arteritis in schistosomiasis mansoni associated with right ventricular hypertrophy; report of case, *Am. J. Path.*, 11:693, 1935.

8. Hayward, W. G.: Schistosomiasis japonicum with vesical involvement 37 years after infection, *J. Urol.*, 39:722, 1938.

9. Greenfield, J. G., and Prichard, B.: Cerebral infection with *Schistosoma japonicum*, *Brain*, 60:361, 1937.

10. Cutler, M.: Bilharziasis in United States and Canada, *J. A. M. A.*, 86:816, 1926.

11. Cort, W. W.: Studies on schistosome dermatitis; observations on behavior of dermatitis-producing schistosome cercariae, *Am. J. Hyg.*, 23:349, 1936.

12. Peacock, A. H., and Voegtlin, W. L.: Sporadic occurrence of bilharziasis in Washington, Northwest Med., 45:174, 1935.

13. Edwards, A. C., and Brackett, S.: "Swimmer's itch"; schistosome dermatitis, *Wisconsin M. J.*, 37:543, 1938.

14. Cort, W. W.: Studies on schistosome dermatitis; further information on distribution in Canada and United States, *Am. J. Hyg.*, 24:318, 1936.

## PRIMARY SYPHILIS IN AN 89 YEAR OLD MAN\*

### REPORT OF A CASE

J. W. TEDDER, M. D.

NEW ORLEANS

I would like to report a case of primary syphilis in a white male, aged 89 years. This man was referred to my office one month ago by Dr. J. N. Roussel with a tentative diagnosis of primary syphilis. He asked that I confirm this diagnosis by dark field examination. This was done and it was positive.

#### CASE REPORT

The history of the individual is quite interesting. He was born in 1850, in Norway, and all except the first two years of his life have been spent in the United States. He came to New Orleans to see and partake of the festivities having to do with Mardi Gras. He gives a history of several ex-

posures to the same source, followed ten days later by the appearance of a lesion on the glans penis.

Examination of this individual did not reveal any evidence of secondary eruption or mucous patches, but there was a small ulcer, 1 cm. in diameter on the left side of the glans with definite margins, and a serosanguineous discharge.

Examination for spirochetes showed the lesion to be teeming with this organism. I consulted the referring doctor and took a Wassermann, smears for staining and he advised me to start treatment. I limited treatment to bismuth salicylate intramuscularly. After the third injection, the lesion had healed completely without local applications of any nature. There was a small lymphadenopathy in the left inguinal region. That was the only complicating factor of the lesion on the penis. The Wassermann was negative.

Realizing that this diagnosis would be subject to just criticism, I consulted Dr. J. Pratt. His statement was that it was a typical primary lesion of syphilis clinically.

The man responded well to therapy to date. I had a letter from him yesterday and he tells me that he has had no recurrence and feels fine. I put him on mixed treatment until he could report to the next doctor.

\*Read before the Orleans Parish Medical Society, April 10, 1939.

## NEW ORLEANS

## Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Acting Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D., Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

G. C. Anderson, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*

1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

## THE MEMPHIS MEETING OF THE SOUTHERN MEDICAL ASSOCIATION

The latter part of this month there will be held in Memphis the meeting to which innumerable Southern doctors always look forward with pleasure and anticipation. The Southern Medical Association will hold its thirty-third annual convocation in a city which is noted for its hospitality and

for its excellent physicians. As usual there has been prepared a splendid program. Suffice it to say here that on the first day will be given a clinical program presented entirely by Memphis doctors and one in which all specialties will have representation. The next morning the clinical session will be continued and thereafter there will be held nineteen sectional meetings at which the most recent scientific studies will be given by outstanding physicians from the South, as well as from the North and West.

In addition to the scientific section meetings, there are held conjointly other medical society and medical organization meetings. The American Society of Tropical Medicine, of which Dr. A. C. Reed of San Francisco is president and Dr. L. L. Williams, Jr., of Washington, is president-elect, will meet at this time. The National Malaria Committee, with Mr. L. M. Clarkson of Atlanta as chairman and Mr. W. G. Stronquist of Chattanooga as chairman-elect, will also hold their annual gathering. The Southern branch of the American Public Health Association, of which Dr. J. N. Baker of Montgomery is president, will likewise get together at this time. The Southern Association of Anesthetists and the women physicians of the Southern Medical Association will also convene.

The Southern Medical meeting has always been noted for its good fellowship and for its social features. Knowing the Memphis physicians, one can be assured that the high standards of cordiality in their various entertainments will be well maintained. To those who have never previously attended a meeting of the Southern Medical we would urge their going to Memphis the week of November twentieth. To those who have been regular attendants at this outstanding meeting, which is unique in medical circles, such a suggestion is not needed. Those who have gone before will go again. As a very large number of Southern physicians will attend this meeting it would be advisable to engage hotel accommodations promptly.

## SOME REMARKABLE PHASES OF THE WAR

There are very many asides in the great war which apparently bear very little direct relationship to the conflict. Innumerable people change their habits of life and their ways of living during a great military upheaval, yet they are not fighters and not directly connected in any way with war.

One of these unusual phases of the present European unpleasantness bears directly upon the future of American medicine. For example, there is a large group of American men studying in Scotland in Scottish schools who can no longer obtain a medical education in these institutions of learning. They are now making an earnest effort to be admitted to American medical schools, so much so that they have interested the Secretary of State in their dilemma. Most of the states and state boards of medical examiners will not admit these men from Scotland. Their education is inadequate or they would have been admitted to American schools and their training in Europe is not comparable to that obtained by the American students.

In order to maintain the high standards of the medical profession, ethically and scholastically, and to have men of high character enter the medical profession, it has been necessary to scrutinize rigidly the applicants for admission to the medical schools, investigating not only their educational training but also looking into the stock from whence they came and the character that they have built up. As a result of this, the American medical profession stands out as the finest profession in this country or in the world. It is composed of men of high accomplishments, men of integrity, honesty and decency. If the bars are let down and a large number of men admitted to the medical schools it would be obviously unfair to the present medical profession and unfair to those who will be physicians and who are already in the universities. Every medical school has a definite limit to the number of men it can accept and this limit is based on the facilities for training and the instructors avail-

able for teaching. If the given number at any medical school is abruptly increased then the students will suffer.

Another evidence that there is an effort to lower medical standards is borne out by a series of resolutions that were passed by Service Clubs Post No. 546 of the American Legion. These resolutions advocate selecting students for admission to the medical schools based on physical fitness and adaptability for military service. They recommend that for admission to the medical schools, R. O. T. C. graduates should be given preference and lastly, and most disturbing, that the number of admissions of students to medical schools annually should be increased so that there would be enough doctors to serve the military force in time of war, at the same time to leave a surplus of doctors, after mobilization, sufficient to serve the anticipated needs of the civilian population. If these resolutions were followed out, just as if the propaganda of the American Medical Clubs of Scotland proved successful, it would mean an increment of poorly trained men to the medical profession which at the time is amply large enough to care for the needs of the civilian population and which under stress of possible war, even if a large number of medical men were mobilized, would still be able to care for the civilian population.

Efforts to increase the number of doctors by lowering qualifications for entrance into this profession should be decried by all thinking gentlemen.

—o—

## PAIN AND SNAKE VENOM

One of the real problems the practitioner of medicine often has to contend with in his practice, is the relief of intractable pain. Every physician sees patients who have carcinoma and so gradually are dying as result of this condition. Sometimes their pain is so severe that relief can be obtained only through the use of morphine or opium and often these patients become addicts, a deplorable complication which often leads to great unhappiness. There are a host of other causes for severe pain, controlled only with the greatest difficulty. If



some method were evolved whereby these patients might be returned to work for a while, whereby their general health might be improved by relief from the constant suffering and if the procedure would also give a sufficient amount of comfort so that less powerful habit-forming drugs could be employed, such a method should be a boon to humanity.

Some ten years ago a Cuban leper was bitten by a poisonous spider; the leper was promptly relieved of severe pain in his arm. This observation was brought to the attention of Calmette of the Pasteur Institute. He proceeded to investigate the possibilities of this plan of treatment of pain, with gratifying results. Assuming that animal poisons might relieve pain he chose for experimental work cobra venom, as it is richest in neurotoxins. About four years ago cobra venom began to be used in this country under the stimulation of Macht. Since that time a few others have reported upon the satisfactory results obtained from this form of therapy.

A recent report by Rutherford\* confirms

that which has been the experience of others who have used cobra venom. He reports on some seventeen patients, most of whom had carcinoma. In eight of these, or nearly 50 per cent, there was practically complete relief of their intractable pain. In only two was the relief not pronounced, classified according to the author as 50 per cent or less relief. In the other seven the percentage of relief was between 50-95 per cent. In other words, in 88 per cent of patients relief was 50 per cent or more.

Cobra venom is given in quantities equivalent to five mouse units, 1 cubic centimeter. This is given intramuscularly. After the initial dose, the dosage was increased to 2 or 3 c. c., 10-15 mouse units, and continued for four or six days until relief was obtained. It is then possible to lower the dose to a maintenance level which has been found to be approximately 1 c. c. given every other day. The first few doses of venom may produce local tenderness, but subsequent injections after a few weeks fail to produce this reaction.

Cobra venom can be given by the patient. It is not expensive and there is no danger of addiction. As Rutherford said, it offers a real possibility of helping in the management of a very difficult group of patients.

\*Rutherford, R. N.: The use of cobra venom in the relief of intractable pain, *New England J. Med.*, 221:408, 1939.

—o—

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### TOURO INFIRMARY

New Orleans

The regular monthly meeting of the Medical Staff of Touro Infirmary was held on Wednesday, October 11, 1939, at 8 p. m.

The first order of scientific business was the clinico-pathologic conference conducted by Dr. John A. Lanford. Next Dr. Dean H. Echols presented cases of tic douloureux and brain tumor. This was followed by case presentation of a patient suffering from blood dyscrasia (aplastic anemia) by Dr. C. J. Tripoli. This presentation was discussed by Dr. J. D. Rives. Dr. L. H. Landry then spoke on unusual complication following Rammstedt operation.

### SOUTHERN BAPTIST HOSPITAL

New Orleans

The regular monthly meeting of the Clinical Staff of the Southern Baptist Hospital was held on Tuesday, October 24, 1939, at 8 p. m.

The scientific program included a presentation by Henry Laurens, Ph.D., entitled "Physiology and Surgical Significance of the Autonomic Nervous System." Dr. Gilbert C. Anderson reported on the "Present Status of Treatment in Craniocerebral Injuries." The last scientific business was a case report of tuberculous splenomegaly presented by Dr. C. C. Stapp from the service of Dr. E. Z. Browne.

### NORTH LOUISIANA SANITARIUM

The regular meeting of the North Louisiana Staff was called to order September 26 by the President, Dr. George Wolfe, there being thirty members and three guests present.

The scientific program was as follows: Dr. Rigby presented four cases illustrating the indications for cesarean section, namely, dystocia, breech presentation in a primipara 36 years of age with a borderline pelvis, twins with early toxemia of pregnancy. Dr. Rigby's cases were dis-

cussed by Drs. Mays, Hargrove, and Scott.

Dr. Mays presented a case of hypertension of pregnancy of gradual onset in a primipara, gravida 1, 36 years of age, and a second case of hypertension of pregnancy of sudden onset, gravida 2. He used these cases as illustrations in his discussion of the treatment of toxemia of pregnancy. Dr. Mathews discussed the pathology of toxemia of pregnancy, and Dr. Mays' cases were further discussed by Drs. Herold, Wolfe, Bishop (Capt., U. S. M. C.), and Hargrove.

N. Judson Bender, M. D., Sec.

### J. T. NIX CLINIC

New Orleans

At the meeting held in October, Doctor J. A. Gaudet presented the following paper:

#### THE SERODIAGNOSIS OF SYPHILIS WITH FURTHER TABULATIONS OF RESULTS OBTAINED BY THE WASSERMANN AND LAUGHLEN REACTIONS

"Young man, know syphilis—know tuberculosis—in all of their manifestations, and you'll know medicine." This dictum has been promulgated to the novice in medicine, almost prosaically, and experience in later life bears out the scientific verity of the teaching. Possibly, because it is such a mimic or because it is so often cloaked and involved as to be beyond recognition, the former stalwart of mankind's common ills—syphilis—presents the gravest diagnostic difficulties, so that, it is indeed fortunate that the clinical laboratory can offer the clinician some sound and practical aid. Darkfield and other methods of direct examination of the local lesion expressions render the perception of the disease comparatively simple in its primary stage; however, in its later and mystifying stages, serodiagnosis—the recognition of changes produced in the blood serum—is the character of laboratory aid depended upon.

Our present day serologic differentiation of syphilis is accomplished by: (a) the complement fixation test; (b) the precipitin or flocculation reactions, and (c) a variety of miscellaneous tests. The complement fixation test, represented by the Wassermann reaction and its ilk, utilizes the "bait" principle wherein added complement and antigen search out the presence of syphilitic infection as denoted by the presence of syphilitic amboceptor (syphilitic antibody), so-called "reagin"—according to the third order antigen—antibody workings of Ehrlich's figurative "Side Chain Theory"<sup>1</sup>—all of which is figment since syphilitic amboceptor is a questionable body and all that is tangible of the reaction is figment since syphilitic amboceptor is a questionable body and all that is tangible of the reaction is that complement, "the key ingredient", is absorbed or "bound" in unusual amounts by syphilitic serum in the presence of alcoholic, organic extracts. The reaction embraces five factors: complement, antigen (organ extracts),

"reagin" (syphilitic amboceptor?), hemolysin, and erythrocytes, all of which are biologic complexities and prone to a multiplicity of individual variations. Like a chain which is no stronger than its weakest link, the reaction is no better than its most indefinite ingredient.

Theoretically, "reagin" should be a stable body; practically inactivation temperature (56° C.) damages and "slows" it down, and since it renders inert complements, anticomplements, certain proteolytic substances and other potential false positive sources, inactivation is a procedure essential to the proper mechanism of the reaction and its dependability. It is a step which on the one hand decreases the sensitivity of the reaction and on the other hand it is one which increases its reliability.

The complement fixation test is rife with possibilities of error; its technic is intricate, time consuming and cumbersome, and it demands experienced operators, expensive apparatus and scrupulous scrutiny; yet behind it is time and repute, and it probably occupies the prime position as a laboratory aid to the diagnosis of syphilis.

The precipitin or flocculation tests as represented by the Kahn or one of its numerous types (Meinecke, Sachs-Georgi, Verne, Eagle, Murata, Müller, Kline, Rosenthal, Weiss, Hinton, Johns and many others) is understandable by reference to the antigen-antibody scheme of the second order of Ehrlich's "Side Chain Theory."<sup>2</sup> The reaction includes only two factors, antigen and antibody, and it is distinctly less prone to errors due to variations in its components. It does not require inactivation and it may be run in the presence of anticomplementary substances which would render the Wassermann system ineffective; it is not influenced by temperature or climatic changes and may be run in any part of the world. It is cheaper, simpler, less time consuming (the Kahn requires one hour for its completion), and does not demand such skilled technical operation. Though not so distinctive as the Wassermann reaction, it is the test most extensively used today.

The miscellaneous tests such as Ide's coloring reaction,<sup>3</sup> the epiphanin reaction,<sup>4</sup> the miostagmin reaction,<sup>5</sup> and others offer little concrete aid; they are either so technical or unreliable that their use has never become general.

Possibly, the optimum of laboratory support may be tendered by routine "check-up" of a basic Wassermann system with one of the simpler second order reactions, as the Kahn or a more rapid and practical modification, thus enabling one to recheck and more carefully scrutinize discrepancies.

G. F. Laughlen has coined a simple and rapid serologic test for syphilis based on the flocculation principle which fits very satisfactorily into this scheme.<sup>6</sup> The test is to be recommended because it may be completed in ten minutes or so; it is easily read; it does not require any great degree

of technical skill or expense for its performance; preliminary tampering (inactivation) with the serum to be tested is unnecessary; and only a drop of it is required; it is suitable for emergencies and, as the technic is similar to that of blood matching, it is adaptable as a pretransfusion measure; and it is sufficiently reliable and sensitive. Lever and Massie concluded after a series of 780 comparisons that the Laughlen test was less sensitive and more specific than the rapid Hinton modification but more sensitive and less specific than the Kahn test.

Laughlen claimed a 98 per cent agreement with the Wassermann and a 99 per cent agreement with the Kahn based on examinations of 400 blood sera and 20 spinal fluids. He further maintains a close agreement with several hundred positive sera. Robinson and Stroud<sup>8</sup> reported 1,000 sera with a 93 per cent tally with the Wassermann and a 97 per cent tally with the Kahn.

The following is a tabulation of the results of 627 sera routinely examined at the clinic in conjunction with the Wassermann test.

Wassermann negative and Laughlen negative..	493
Wassermann strongly positive and Laughlen strongly positive .....	116
Wassermann negative and Laughlen positive....	3
Wassermann positive and Laughlen negative....	3
Wassermann weakly positive and Laughlen negative .....	4
Wassermann anticomplementary and Laughlen negative .....	8

In this, there is close to a 98 per cent agreement with our Wassermann system, substantiating Laughlen's original contention.

The Laughlen test is a slide variation of the flocculation principle which employs an alcoholic, beef-heart extract modified by the addition of certain amounts of cholesterol, compound tincture of benzoin and a water-insoluble dye, Scarlet R or Sudan III. As the antigenic particles lock with their specific antibodies and are precipitated out of solution, the water-insoluble dye colors them and renders them more visible. The cholesterol and compound tincture of benzoin are added to increase the sensitivity of the reaction. The technic is almost fool-proof and consists in placing a drop of unknown serum on a clean, dust-free slide; then, adding an equal amount of activated Laughlen reagent and tilting the slide repeatedly for ten minutes, observing constantly against a dark background through diagonal rays of light. A positive is indicated by the formation of coarse red granulations which "grow" and become more distinct within ten minutes. Absence of true conglomerate granule formation or prolongation of the act beyond ten minutes indicates a negative reaction. Time is the factor which determines the positivity of a serum; the degree of granulation does not spell the grade of the positivity, that is, a strongly positive reaction and a weakly positive reaction

might have the same amount of granulation. A strongly positive reaction is depicted by conglomerate forming within five minutes; between five and ten minutes indicates a weakly positive reaction; and beyond ten minutes a negative reaction.

## REFERENCES

1. Kolmer, John A.: A Practical Text Book of Immunity and Specific Therapy, W. B. Saunders Co., Philadelphia, 2nd ed., p. 156, 1920.
2. *Ibid.*, p. 154.
3. Guisumberg, M.: Ide's new coloring test for syphilis, *Porta Laguma*, p. 609, *J. A. M. A. Abs.*, 103:428, 1934.
4. Kolmer, John A.: A Practical Text Book of Immunity and Specific Therapy, W. B. Saunders Co., Philadelphia, 2nd ed., p. 559, 1920.
5. *Ibid.*, p. 563.
6. Laughlen, G. F.: A rapid test for the diagnosis of syphilis, *Canad. M. A. J.*, 33:179, 1935.
7. Lever, W. F., and Massie, W. K.: The Laughlen test in the diagnosis of syphilis, *Arch. Derm. & Syph.*, 40:45, 1939.
8. Robinson, F. H., and Stroud, Geo. M.: Laughlen's test for serodiagnosis of syphilis, *J. A. M. A.*, 108:1170, 1737.

HUTCHINSON MEMORIAL CLINIC  
OF THE  
SCHOOL OF MEDICINE

THE TULANE UNIVERSITY OF LOUISIANA  
New Orleans

Scientific Session, with Presentation of Cases, conducted by the Department of Medicine, Dr. Roy H. Turner presiding:

*Graves' Disease* (Dr. H. T. Engelhardt): The case which I shall present tonight is in the nature of a problem. It is by no means a rare one, since it is not infrequently seen in practice.

This patient was sent to the Department of Medicine with the provisional diagnosis of rather marked Graves' disease. She stated that for some time her friends had commented, with increasing frequency, upon the gradual enlargement of her neck, particularly during the last three months. At the same time, they called her attention to an increasing tendency to "pop-eyedness." The patient was aware of these signs when she compared photographs taken at different times during the last year.

The patient has become quite nervous, particularly during the last three months, and has noticed a tremor of her hands. She states that she perspires more freely in the summer than any of her friends, and seldom complains of cold hands and feet in the winter. There is no history of headache or complaint referable to eyesight, nor is she aware of any discomfort in her neck. She complains of dyspnea on exertion, but not of any palpitation of her heart. Her appetite is good, and in spite of excessive eating, she has lost approxi-

mately fifteen pounds within the last three months. She has no trouble in digesting her food, which is very low in protein. In addition, she drinks six to eight coca-colas daily. She has no urinary complaints but states that she has missed last month's menstrual period. She becomes tired in her legs when she walks upstairs, and sometimes she even feels the muscles tremble. Her past history presents nothing of particular significance, except for two miscarriages, nor does the family history. She uses tobacco and alcohol to extremes, and sleeps poorly.

On physical examination, her blood pressure was 140/85; pulse 100; temperature 98.6°. The patient is a well developed and well nourished white female, who is obviously nervous, and whose skin is warm and moist to touch. The eyes seem to be more prominent than normal; the palpebral fissure is widened and there is a suggestion of von Graefe's sign. The pupils react normally to light and to accommodation. The neck reveals a smooth, symmetrically enlarged mass in the region of the thyroid which gives no thrill on palpation nor is a bruit to be heard. The lungs are essentially negative, as well as the heart, except for a rate of 100. Examination of the genitalia reveals a lacerated, yet fairly soft cervix which admits the tip of the small finger. The uterus is normal in size and position. The reflexes are all hyperactive, with no pathologic ones present. There is a fine, definite tremor of the hands. There is a marked quadriceps weakness. The laboratory work showed: Blood and urine, normal; electrocardiogram, within normal limits; blood cholesterol, 185 mgms./100 c. c. of blood. X-ray of chest revealed no abnormalities. Two basal metabolic rates were obtained five days apart, one showing 0, the other minus 2.

Here we have a patient whose history and physical examination certainly would lead one to suspect hyperthyroidism. Yet one is met with a 0 basal metabolic rate and a minus 2 basal metabolic rate. It is difficult to overlook such figures, although one cannot help wondering what her metabolism was six months ago before she developed these signs and symptoms that she presents tonight, and what they will be six months from now. Is she in a remission now—perhaps? Only time will tell. The examination of this patient would hardly suggest a neurotic basis, I believe.

However, there is one fact that I have not as yet mentioned. Besides a low protein diet, she has been taking iodized salt for the last five months. This fact is of interest when one knows that the average daily intake of iodine is from 1-2 mgm., and that as low as 0.75 mgm. of iodine has been shown to lower the basal metabolic rate in some cases.

The final diagnosis is certainly not clear, but probably a clearer picture may present itself after the patient has been on a diet low in iodides.

*Postoperative Myxedema and Subsequent Preg-*

*nancy* (Dr. L. K. Levy): This 21 year old woman was first seen in consultation on January 9 of this year. The original and sole complaint was ankle edema. One month previous to this visit a subtotal thyroidectomy had been performed. The basal metabolic rate was plus 74 a few weeks prior to operation and it was reduced to plus 26 by the time of operation. A preoperative electrocardiogram was interpreted as being "very strongly suggestive of myocardial disease."

About two weeks after operation, which was two weeks before I saw her, she noted swelling of her ankles when she began to sit up and this condition was exaggerated as she moved about. Other symptoms pointed to a mild hyperthyroidism. When I first saw the patient the blood pressure was 122/78; the pulse rate, 74, and the weight, 138 pounds. At that time, a bilateral and symmetrical slight pitting edema of the ankles was noted. Her usual weight was 150 pounds and it was 130 pounds one week prior to operation. The basal metabolic rate was now minus 3; blood cholesterol, 214 (upper limit of normal being 200 in our laboratory); the blood NPN was 34, and the serum proteins were normal. The electrocardiogram showed the T waves upright in leads 1 and 2 and the QRS complexes were not small.

About two months postoperatively, she began to complain of tiring rather easily and of intolerance to cold. By April 27, which was four months postoperatively, she had gradually gained twenty pounds; the pulse rate was 62; the blood cholesterol had slowly risen to a value of 272; the basal metabolic rate had gradually fallen to minus 28, and the skin of the hands was dry and cracking. The electrocardiogram showed T waves inverted in all leads. On this date, thyroid medication was begun with one grain daily, the dosage being gradually increased over the next two months to two grains, only to be reduced to one and one-half grains daily shortly afterwards. This dosage has been maintained.

The following changes were noted after thyroid medication was begun: The T waves in the electrocardiogram became upright two weeks after the medication was begun and were of normal height four months later; the basal metabolic rate gradually rose to minus 12 and later dropped to minus 20 when the dosage was reduced to one and one-half grains and the metabolic level has since remained at minus 12; the weight dropped five pounds rapidly and has subsequently risen eight pounds; the blood cholesterol rapidly dropped to 194; the hands were rapidly returned to normal and the edema rapidly disappeared. The x-ray reports throughout observation showed no enlargement or reduction of the heart shadow.

The one and only time this patient has menstruated since operation was two weeks prior to the time thyroid medication was begun. The Fried-

man test was reported positive two months after the medication was begun.

Although myxedema was suspected, treatment was delayed for the very good reason that there was not sufficient evidence to support a definite diagnosis until very shortly before treatment was begun. Pitting ankle edema and the electrocardiographic changes prior to operation made necessary the elimination of possible cardiac failure. Pitting ankle edema is present in about one-half of myxedematous cases. The circulation time, although prolonged, was of no value in aiding in a differential diagnosis in this instance because it is prolonged both in cardiac failure and in myxedema. The value for venous pressure, however, was well within normal limits which is inconsistent with a diagnosis of cardiac failure and is usual in myxedema. An extremely unusual feature of this case, previously unrecorded so far as I have been able to determine, was the presence of mucous edema coexisting with a basal metabolic rate of minus 3. This edema became progressively more marked and reached a maximum when the basal metabolic rate fell to the lowest level of minus 28. In experimental athyrosis, the basal metabolic rate rapidly drops to minus 30, or below, with the rapid appearance of all signs and symptoms of marked hypothyroidism and with the appearance of mucous edema as the last and the "specific" thyroprival sign. All cases that have been reported of postoperative myxedema and myxedema induced by total ablation of the thyroid gland in congestive failure consistently showed a maximal drop in the basal metabolic rate some time before myxedema appears. It is unusual for full-blown myxedema to develop with a basal metabolic rate higher than minus 35. The basal metabolic rate and cholesterol values may or may not show reciprocal changes as they did in this case. The electrocardiographic changes that took place are practically pathognomonic of marked hypothyroidism.

I would like to say a few words about the dosage of thyroid in myxedema. You will note that an initial dosage of one grain was used and this was gradually increased to two grains daily, subsequently being reduced to one and one-half grains. A small initial dosage was used because this is generally regarded as the best practice and it is also true that it may take but little thyroid to restore these patients. Because postoperative myxedema patients do not seem to tolerate thyroid as well as do spontaneous myxedema cases, the dose was cautiously increased. In the older age group, rapid increase in dosage is distinctly dangerous due to sudden strain on the heart which may lead to acute coronary insufficiency. This case illustrates very well the fact that one should treat the patient and not the basal metabolic rate. Although the basal metabolic rate was raised from minus 28 to only minus 12, the thyroid medication

had to be reduced due to symptoms and signs of intolerance. At present, the patient is satisfactorily maintained with a basal metabolic rate of minus 20.

Hypometabolic states resulting from thyroidectomy may be classified into those patients with and those without myxedema. Approximately two per cent of patients having thyroidectomies for toxic goiter develop postoperative myxedema, which is permanent in approximately half of these. There is no way of predicting whether the myxedema will be permanent or temporary; it is simply necessary to use trial omission at intervals. It is of interest to note that cases of toxic goiter have been reported in which basal metabolic rates have been reduced to normal by operation and in which the administration of iodine produced a myxedematous state which was quickly overcome by omitting the iodine. This patient was receiving iodine when first seen and although the iodine was discontinued, no beneficial result was noted.

There is considerable difference of opinion regarding the significance and interpretation of basal metabolic readings during pregnancy. This difference is so marked that I am sure that the only safe plan for management of this case will be to follow the weight changes and pulse rate, and be on the lookout for symptoms and signs which may accompany a hypothyroid state. Whether myxedema will become better or worse during the course of pregnancy is unpredictable. There is no reason to attribute to the pregnancy any possible change in the myxedematous state that may occur when the pregnancy is concluded.

*Diverticulosis* (Dr. Grace A. Goldsmith): This patient presents a diagnostic problem frequently encountered in the medical clinic; that is, the determination of the cause of gastrointestinal complaints. Symptoms relative to the digestive tract are found in widely divergent pathologic states, yet these symptoms may be remarkably similar. In an individual over fifty years of age, whose presenting disturbance is gastrointestinal in character, malignancy should be the first consideration. This possibility should be ruled out by careful and thorough examination before another diagnosis is entertained.

This patient, a widow, 72 years of age, was admitted to the Clinic on November 22, 1938, complaining of epigastric distress of four months' duration. The pain was diffuse, poorly localized, and increased by foods which were bulky or high in residue. At times there was colicky abdominal pain without nausea or vomiting. There had been a loss of weight amounting to about twenty pounds. The patient had gradually eliminated one food after another from the diet because of this indigestion, so that when she came in to us she was living on cereals, toast and milk. She gave a history of constipation of about two weeks' duration which required a daily enema for relief. The only

significant finding in the past history was that since the birth of her last child thirty years ago, she had had an umbilical hernia which had been asymptomatic. On examination, the patient was found to be fairly well nourished, although the skin showed evidence of recent loss of weight. There was a generalized arteriosclerosis of moderate degree. Nothing of note was found on examination of the head, neck or chest. The abdomen showed an umbilical hernia, the ring measuring 5 cm. in diameter. The contents of the hernial sac could be readily reduced. There was tenderness in the lower left quadrant and the colon could be palpated in this area. Rectal examination showed nothing abnormal.

Here we have the problem of a person over fifty, who for the first time experiences gastrointestinal distress. What were the diagnostic possibilities? Some type of malignancy either involving the stomach or colon was the first consideration. Roentgenologic and laboratory studies were essential to come to any conclusion. The blood picture and urinalysis were normal. Stool examination showed occult blood. The chest x-ray and electrocardiogram were without pathologic findings. A gastric analysis after histamine stimulation showed a free acidity of 60, total of 70. This last finding does not rule out carcinoma of the stomach, but it makes such a diagnosis unlikely. X-rays of the stomach and colon after the administration of barium sulfate failed to show any abnormality aside from spasticity of the colon. In spite of this negative finding, it was thought that the patient was entitled to further examination by means of a barium enema. This showed multiple diverticula in the region of the descending colon. The question then arose, were the symptoms of which this patient complained due to low-grade inflammation in these diverticula; were they due to the umbilical hernia, or merely to a spastic and irritable colon? The question could not be definitely answered. However, it seems likely that mild diverticulitis was a factor in producing the symptoms of which she complained.

Treatment consisted in a low residue diet, antispasmodics, sedatives, and the administration of mineral oil to control the constipation. On this regime, the patient became symptom-free and showed a gain in weight. For the past year she has been well except for occasional slight abdominal pain after some dietary indiscretion.

Diverticulosis of the acquired type is found in five to ten per cent of individuals over the age of 45 years. The etiology is not completely understood. It is thought that with advancing age and atrophy of the musculature of the colon, increase in pressure and possibly stasis allow out-pouchings of the mucous membrane to occur. Diverticulosis alone is not the cause of symptoms. These are present only when there is an inflammatory reaction involving the diverticula, which occurs in

5 to 15 per cent of cases. When symptoms appear, they are of several types. One syndrome, due to diverticulitis, simulates carcinoma of the bowel with either chronic recurrent partial intestinal obstruction or acute obstruction. Another syndrome resembles acute appendicitis with pain in the abdomen, tenderness, rigidity, fever and leukocytosis. At times, the first evidence of diverticulitis is due to a complication in which the inflammatory lesion of the colon has spread to surrounding structures involving the bladder, and leading to the formation of a vesico-colic fistula. In still other instances, diverticulitis will cause rather vague symptoms, such as epigastric distress, cramping abdominal pain, constipation and bleeding from the bowel. This last clinical picture was the one presented by this patient. The treatment of diverticulitis is largely medical, consisting in a diet low in residue, antispasmodics and sedatives, and in preventing the development of constipation. Surgery is reserved for complications, and even then the procedures are restricted to only the barest essentials. The mortality following operation is apt to be high due to the infected field and the possibility of spreading infection throughout the peritoneal cavity.

*Obesity with Amenorrhea* (Dr. J. O. W. Rash): This young lady, 22 years of age, was admitted to the Clinic on September 1, 1939, complaining of obesity since the age of six and of rather scanty menstrual periods. She stated that her menstrual periods did not begin until she was 18 years of age, and that they lasted only one-half day, the interval averaging every two months. On admission, she weighed 331 pounds. At the age of seven years, she weighed 200 pounds; at 14, 270 pounds, and she reached the peak of 331 pounds in September when she decided to come in and do something about it. She is one of the most intelligent patients we have had in the medical clinic here. She has lost 31 pounds since September 1. I might add that she has a family history of obesity; her mother weighed 280 pounds. The patient has had none of the childhood diseases and her general health has been excellent.

On physical examination, we found a markedly obese individual, with adiposity chiefly deposited over the abdomen, hips, lumbar region and extremities. The hair on her head was noted to be rather fine and profuse. There was little hair on the extremities. The skin of the upper extremities and trunk was dry, over the lower extremities moist. Striations were noted on the trunk, thighs and upper part of the arms. The head, ears and eyes were normal. Visual field and ophthalmoscopic examinations were done and they were negative; the oral cavity was negative. The thyroid was not palpable; breasts were pendulous; the lungs and heart showed nothing abnormal. The abdomen, which was very obese, was very hard to palpate but was considered normal. Genu valgum was

noted. She was sent to the Department of Gynecology for a pelvic examination; the pubic hair was scanty and of female distribution, and they reported an underdevelopment of her external genitalia. The labium majora was absent on the right, rudimentary on the left, and the clitoris was moderately hypertrophied. On vaginal examination, the uterus could not be felt; the cervix was of normal size and consistency and not infantile. I might add that, on admission, her blood pressure was 152/90-100; pulse 92 and regular.

The laboratory work was as follows: Wassermann, negative; red blood cells, 4,270,000; hemoglobin, 70 per cent; urine, negative. We did a water tolerance test on September 17, giving her 1,250 c. c. of water to be consumed as rapidly as she could take it, and having her collect her urine every three hours. Seventy-five c.c. were voided at the end of the first hour, 68 c. c. at the end of the second hour, and 75 c.c. at the end of the third hour; specific gravities were 1.008, 1.008 and 1.015, respectively. On four successive days her fluid intake varied from 3,250 c.c. to 1,500 c.c., and her output from 1,500 c.c. to 750 c.c. We did a fasting blood sugar, which was 100 milligrams. Today we did a glucose tolerance test using 100 gm. of glucose. The blood sugars were as follows: 100 mg., first hour; 175 mg., one-half hour; 191 mg., one hour; 121 mg., one and one-half hours; 190 mg., two hours. No subsequent determinations were made. On September 16, her basal metabolic rate was minus 6, and, on September 28, minus 5. On September 19, an x-ray of the skull showed a slight enlargement of the sella turcica but there is no evidence of bone erosion. There were scattered areas of calcification in the falx cerebri in the frontal region. On September 30, right and left shoulders revealed ossification of all epiphyses.

She was placed on approximately 500 calories on September 11. On September 18, she weighed 318 pounds. Fluids were restricted to 2,000 c.c. daily. On September 29, she weighed 308 pounds; her blood pressure was 140/96. Her diet was increased to 633 calories and she was receiving 36 grams of protein daily. She was put on a low salt diet; fluids were limited to 2,000 c.c. daily. Vitamin concentrates were prescribed, and thyroid extract, one grain twice a day ordered. On October 10, her weight was 302½ pounds; blood pressure 120/76; pulse 90. Protein intake was raised to 60 grams daily; her diet was increased to 710 calories; fluids were limited to 2,000 c.c. daily, with low salt intake. Today she was in the clinic and weighed 300¼ pounds.

From a diagnostic standpoint, we felt that this patient presented a typical picture of Fröhlich's syndrome with dietary obesity. Myxedema, adrenal cortical tumor, pituitary basophilism and Dercum's disease were considered in the differential diagnosis.

*A Cardiovascular Diagnostic Problem* (Dr. W. H.

Gillentine): I have a patient who is rather interesting for two reasons: First, she has a condition which is rare, there being only one other case reported in the literature similar to it; second, we cannot explain all of our objective findings.

This patient is 38 years of age. She is of Greek extraction and speaks very little English; consequently, her history is somewhat inadequate. As a girl, she suffered from attacks of weakness and faintness lasting two to three hours, which would occur once or twice a year without relation to exercise. The remainder of her medical history during childhood is irrelevant. She was unable to have children during the first two years of her marriage and, while in Europe, had some "female operation" to permit children. At that time, the surgeon told her that she had "heart trouble" and the operation was done under spinal analgesia. She has since had two living children, the second with symptoms of cardiac failure. Since the operation, the patient has had occasional attacks of precordial pain. This sometimes radiates to the left arm, is momentary, and is usually accompanied by shortness of breath and weakness. The left extremity becomes so weak that she is unable to bring it up to the shoulder level. These attacks have become more frequent in the last six or seven years. When these come on, if she is walking, she will have to sit down and sometimes loses consciousness momentarily. The remainder of her history is not significant.

On physical examination, we find normal reflexes and eye grounds. Patient has enlarged follicular tonsils. A loud systolic bruit is heard over both carotids, being louder on the right side where a diastolic element is also present. A thrill is present over the right carotid, maximal behind the angle of the jaw. Obliteration of the thrill by pressure directly over its maximal area or by pressure on the carotid below the thrill does not appreciably affect blood pressure or pulse rate.

The neck vessels are not visible. A pulsation may be felt in the suprasternal notch. In taking the blood pressure, cuff sounds are occasionally heard between 70-60 mm. of mercury in the left arm. No blood pressure can be obtained in the right arm. Occasionally, upon examination, we are able to feel a very faint radial pulse. The heart is normal in size. A faint blowing systolic murmur is heard over the aortic area and is transmitted upward to merge with the bruit of the carotid. The electrocardiogram is normal. A fluoroscopic examination of the great vessels demonstrates no abnormalities. Examination of the esophagus after barium shows no notching or displacement of this organ. The blood pressure in the patient's lower extremities measures  $\frac{185-90}{85-90}$ . The hands and feet are warm and pink. The Wassermann is negative. The remainder of the laboratory work is normal.

These findings may be explained by an acquired

lesion or a congenital anomaly. The acquired lesion must involve the orifice of the right innominate artery, the left common carotid and left subclavian artery, and of necessity must be a stenosis. A tumor of the upper mediastinum can be ruled out in the absence of the other symptoms. Multiple aneurysms are possible but improbable. The fluoroscopic examination rules out the possibility of aneurysm of the arch of the aorta which has been shown such symptoms. Dr. Turner suggests that hemorrhage within the media of the aorta is not uncommon in a great many diseases. Such hemorrhage involving the orifices of these vessels or a wider area by means of a dissecting aneurysm might possibly explain these symptoms. This possibility has not been ruled out.

Two known congenital lesions may explain the possibilities. The usual vascular tree in the adult is formed by the persistence of the fourth left aortic arch. It is possible that the right arch has persisted and that the blood supply of the right arm, head and neck arise from such a vessel.

Against this possibility is the fact that the left subclavian most commonly arises from the left fourth arch and that the blood supply in its distribution is apparently no different from that in the right arm of the patient. The absence of notching of the esophagus, which would occur if the right fourth arch were present, is also against this possibility.

Another possibility is that the normal aortic arch has undergone a persistent atresia with the blood supply to the lower extremities being maintained through a patent ductus arteriosus. The objection to this possibility is that no cyanosis is present in the lower part of the body.

An interesting possibility is that the patient may have acquired an arteriovenous aneurysm in the right side of the neck in adult life which passes sufficient blood to decrease the cerebral circulation enough to increase the frequency of symptoms of cerebral anoxemia. Visualization of the great vessels apparently offers the only means of making a definite diagnosis in this case.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

- |              |   |              |   |
|--------------|---|--------------|---|
| November 2.  | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.  | November 20. | Hotel Dieu Staff, 8 p. m.   |
| November 6.  | Board of Directors, The Orleans Parish Medical Society, 8 p. m.<br>Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.                | November 21. | Charity Hospital Medical Staff, 8 p. m.   |
| November 7.  | Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.   | November 22. | Clinico-pathologic Conference Charity Hospital and L. S. U. Medical Center, 2 p. m.<br>French Hospital Staff, 8 p. m. |
| November 8.  | Clinico-pathologic Conference Charity Hospital and L. S. U. Medical Center, 2 p. m.<br>Touro Infirmary Staff, 8 p. m.                   | November 28. | Baptist Hospital Staff, 8 p. m.   |
| November 13. | Orleans Parish Medical Society, 8 p. m. Election of Delegates to the Louisiana State Medical Society, and nomination of Officers, 1940. | November 30. | L. S. U. Faculty Club, 8 p. m.  |
| November 14. | Eye, Ear, Nose and Throat Club, 8 p. m.   |              |   |
| November 15. | Clinico-pathologic Conference Charity Hospital and L. S. U. Medical Center, 2 p. m.<br>Charity Hospital Surgical Staff, 8 p. m.         |              |   |
| November 16. | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.  |              |   |
| November 17. | I. C. R. R. Hospital Staff, 12 noon.<br>New Orleans Dispensary for Women and Children Staff, 8 p. m.                                    |              |   |

During the month of October, besides the regular meeting of the Board of Directors, the Society held its regular meeting on Monday, October 9. The following scientific program was presented:

The Treatment of *Trichomonas Vaginalis* Vaginitis with Special Reference to a New Method by the Author.

By:.....Dr. Earl Conway Smith.  
Discussed by Drs. Edwin L. Zander and closed by Dr. Smith.

Fractures of the Humerus.

By:.....Dr. Rufus H. Alldredge.  
Discussed by Drs. Marvin P. Knight, Nathan H. Polmer, Guy A. Caldwell, and closed by Dr. Alldredge.

Gastroscopy in Surgery.

By:.....Dr. Donovan C. Browne.  
Discussed by Drs. Alton Ochsner, A. L. Levin, Daniel N. Silverman, and closed by Dr. Browne.

Following the scientific program an executive



session was held when the reports of officers and committees for the third quarter were read.

The next regular meeting of the Society will be held on Monday, November 13. At this time election of Delegates to the Louisiana State Medical Society will take place. Nomination of officers for 1940 must be handed in to the Secretary before 9 p. m. on this same date.

The following doctors were elected to Active Membership: Drs. Rupert E. Arnell, Albert A. Maybeno, Norton W. Voorhies, and Virginia E. Webb; to Interne Membership: Drs. Robert W. Augustine, Ralph L. Bourgeois, Sanders A. Goodman, R. Gordon Holcombe, Jr., Marvin P. Knight, Ross D. Margraves, Morris Pasternack, Richard E. Selser, Henry M. Stern, and William Trachtenberg.

It is with regret that we report the loss by death of one of our active members, Dr. J. E. Isaacson.

Recently members have been solicited by "press photographers." The membership should be warned that the Society has in no way authorized such solicitation.

NEWS ITEMS

Dr. Maxwell E. Lapham addressed the graduating classes of the Schools of Medicine, Pharmacy and Nursing of the University of Tennessee at Memphis. His subject was "Postgraduate Medical Education."

Drs. Michael DeBakey, Dean H. Echols and Alton Ochsner attended the Seventh District Medical Society meeting in Lake Charles on Thursday, September 21. Dr. Ochsner also attended the meeting of the Third International Cancer Congress at Atlantic City, where he presented a paper on "Cancer of the Lung."

Dr. Joseph C. Menendez was elected Senior Vice-Commander-in-Chief of the Veterans of Foreign Wars of the United States at the national encampment held in Boston recently.

On September 28, 1939, Dr. Rena Crawford addressed the Women's Club of Picayune, Mississippi. Her subject was "What the Layman Can Do to Reduce Infant Mortality."

Dr. Carlo J. Tripoli has been appointed Professor of Medicine of the Graduate School of Medicine of Louisiana State University.

Dr. William H. Gillentine was a guest speaker before the Third District Medical Society at their meeting in Lafayette on September 28.

Dr. T. A. Watters attended the Central Neuro-Psychiatric Meeting in Indianapolis on October 6 and 7, and also attended the meeting of the Southern Psychiatric Association in Louisville on October 9 and 10.

Dr. John H. Musser attended the meeting of the Medical Council of the Veterans' Administration in Washington the week of October 10.

Dr. John R. Schenken was appointed Assistant Dean of the School of Medicine of Louisiana State University.

Dr. George J. Taquino attended a meeting of the Committee on Teachers of the American Academy of Ophthalmology and Otolaryngology held in Chicago, October 8. Later he attended the annual congress of the American College of Surgeons in Philadelphia, October 16-20, and visited cancer clinics at Memorial Hospital in New York.

Dr. H. Theodore Simon addressed the Sixth District Medical Society at Jackson, Louisiana, October 10. On October 13 he attended a meeting of the Clinical Orthopedic Society in Oklahoma City, and a meeting of the same Society in Little Rock, October 14. Before returning to New Orleans he attended the annual congress of the American College of Surgeons in Philadelphia.

Dr. Alton Ochsner attended the Graham and Barnes Hospital Reunions in St. Louis, Missouri, October 11-14. He also attended the annual congress of the American College of Surgeons in Philadelphia, where he was re-elected a Regent of the College for a term of three years. Dr. Ochsner took part in several discussions at the meeting, and talked before a number of lay organizations.

Among other New Orleans doctors who attended the annual congress of the American College of Surgeons were Drs. Mims Gage and Ambrose H. Storck.

TREASURER'S REPORT

Actual book balance 8/31/39.....	\$3,865.17
Credits .....	\$ 250.49
<hr/>	
Total credits .....	\$4,115.66
September expenditures .....	\$ 450.04
<hr/>	
Actual book balance 9/30/39.....	\$3,665.62

LIBRARIAN'S REPORT

During the months of August and September, 119 volumes were added to the Library. Of these 56 were received by gift, 45 by binding and 18 from the New Orleans Medical and Surgical Jour-

nal. Notation of new titles of recent date is made below.

Our records show that 1,881 volumes were loaned to physicians during August and September, or more than 3 to each member of the medical society. An additional 490 books and journals were loaned to students, bringing the total circulation for the month to 2,371. These figures do not include the constant use of materials in the Reading Rooms.

Members of the staff have collected material on the following subjects at the request of physicians:

- Complications resulting from gallbladder surgery.
- Carcinoma of cervix complicating pregnancy.
- Stricture of rectum caused by lymphogranuloma inguinale.

Torsion of the testis and spermatic cord.

Recent advances in gallbladder diseases.

Urologic aspects of sterility.

Urinary tuberculosis.

Vesicular lesions of skin.

Miller-Abbot tube in intestinal obstruction.

Traumatic epilepsy.

#### NEW BOOKS

Lien-Teh, Wu: Cholera, 1934.

A. M. A.: New and Non-Official Remedies, 1939.

Fishberg, A. M.: Hypertension and Nephritis, 1939.

Imperatori, C. J.: Diseases of the Nose and Throat, 1939.

Treves, Sir Frederick: Student's Handbook of Surgical Operations, 1939.

Spaeth, E. B.: Principles and Practice of Ophthalmic Surgery, 1939.

Wiener, Meyer: Surgery of the Eye, 1939.

Campbell, W. C.: Operative Orthopedics, 1939.

Livingston, E. M.: End Results in the Treatment of Gastric Cancer, 1939.

McClure, C. W.: Functional Activities of the Pancreas and Liver, 1937.

Fluhmann, C. G.: Menstrual Disorders, 1939.

Clark, LeMon: Vaginal Diaphragm, 1939.

McCoy, Elizabeth: Anaerobic Bacteria and Their Action in Nature and Disease, 2v.

Spicer, F. N.: Trauma and Internal Disease, 1939.

Corrigan, C. E.: Clinical Diagnosis of Swelling, 1939.

Gerling, C. J.: Short Stature and Height Increase, 1939.

Hoopes, G. G.: Out of the Running, 1939.

Insurance Statistics Service: Standard Body Parts, 1939.

Dickinson, F. D.: Functional Disorders of the Foot, 1939.

Gilbert C. Anderson, M. D.,  
Secretary.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

### CALENDAR

New Orleans Graduate Medical Assembly  
Louisiana State Medical Society

February 26-29, 1940  
April 22-24, 1940

New Orleans.  
New Orleans.

### PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

#### OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting of the society was called to order on October 5, 1939 by Dr. D. M. Moore in the absence of the president, Dr. John Pracher.

The scientific program consisted of a paper presented by Dr. J. B. Vaughan on hypertension which was relieved by the removal of a kidney. Discussion followed by Drs. Granger, Wood and Moore.

The application for membership of Dr. Wood H. Scott was unanimously accepted.

L. L. Titcher, M. D., Sec.

#### LAFAYETTE PARISH MEDICAL SOCIETY

The quarterly meeting of the Third District Medical Society was held at the Charity Hospital, Lafayette, on Thursday, September 28, 1939 at 7:30 p. m.

The scientific program consisted of a paper, "Recent Advances in the Treatment of the Infectious Diseases," by Dr. William H. Gillentine, of New Orleans.

R. Sidney Hernandez, M. D., Sec.

#### IBERIA PARISH MEDICAL SOCIETY

The Iberia Parish Medical Society, recently met at a fall meeting, at the dedication of the New

Tilly Clinic-Hospital. The new four story brick building was acquired from the Iberia Parish School Board. After the meeting Dr. Tilly served the visitors of the professions, medical, dental and pharmaceutical of the parish, including the clergy, with a delightful barbecue supper.

---

#### SOUTHERN MEDICAL ASSOCIATION

The thirty-third annual meeting will take place in Memphis, Tenn., November 21-24. The general headquarters will be at the Hotel Peabody and the meetings and exhibits will be at the Municipal Auditorium.

The program for the Memphis meeting will follow in general the plan of recent meetings. Tuesday will be "Memphis Day," with a program of short clinical presentations by Memphis physicians. On Tuesday evening there will be a public session with a program arranged for the laity.

On Wednesday morning there will be a general clinical session with a program arranged and presided over by the President, Dr. Walter E. Vest of Huntington, W. Va. In the afternoon, the nineteen sections of the Association and the three conjoint meetings will convene. A general session, featuring the address of the President followed by the President's Reception and Ball, will take place on Wednesday evening.

The fraternity luncheons and alumni reunions will be held on Thursday and the meeting will adjourn on Friday afternoon.

---

#### DR. HARRISON HONORED

Dr. Roy B. Harrison has been named a member of the Advisory Council on Medical Education to fill the vacancy caused by the death of Dr. Harold Rypins, Secretary, New York State Board of Medical Examiners.

Dr. Willard C. Rappleye, President of the Council, has appointed Dr. Harrison a member of the Committee on Internships and also a member of the Committee on Interstate Endorsement of Medical Licensure.

A meeting of the Committee on Internships will be held December 2 in Chicago, which Dr. Harrison plans to attend.

---

#### LOUISIANA PHYSICIANS RECEIVED INTO AMERICAN COLLEGE OF SURGEONS

Fourteen Louisiana physicians were made fellows of the American College of Surgeons at its annual meeting in Philadelphia. The list includes Drs. R. H. Alldredge, Tulane, 1932; M. E. DeBakey, Tulane, 1932; F. E. LeJeune, Tulane, 1920; Maurice Lescale, Tulane, 1921; C. J. Miangolarra, Tulane, 1926; C. B. Odom, Tulane, 1932; A. Neal Owens, Emory, 1926; R. M. Penick, Jr., Johns Hopkins, 1932; all of New Orleans. H. A. Durham, University of Vermont, 1909; L. W. Gorton,

Vanderbilt, 1915, both of Shreveport; A. Scott Hamilton, Tulane, 1931, of Monroe; R. J. Spedale, Tulane, 1930, of Plaquemine.

Dr. Owens received the rare honor of having his 100 case histories, submitted for membership, selected as the second best set of those submitted to the college. Dr. Owens is Assistant Professor of Surgery in the Tulane University School of Medicine.

---

#### NEWS ITEMS

Dr. Oswald E. Denney has been promoted and commissioned as Senior Surgeon in the Regular Corps of the U. S. Public Health Service, effective July 1, 1939.

Dr. Harris Isbell, formerly of New Orleans, has been promoted and commissioned as Passed Assistant Surgeon in the Regular Corps of the U. S. Public Health Service, effective August 1, 1939.

The American Academy of Dermatology and Syphilology will hold its second annual meeting at the Bellevue-Stratford Hotel, Philadelphia, November 6-8 inclusive.

---

#### TETANUS IMMUNIZATION

Tetanus toxoid is required by law to be given to all soldiers in France. It is suggested that this be given to anyone sensitive to horse serum if their occupation or avocation is likely to bring about injury. This applies particularly to children.

The U. S. Public Health Service has put out the fifth in a series of folders on venereal disease entitled "Gonorrhea—The Crippler." This booklet may be purchased for one dollar a hundred. It is an excellent educational pamphlet which can be handed to any patient who has gonorrhea and tells them what to do and how to avoid transmission of the disease. Those interested may view a copy of the booklet in the office of the Journal.

---

#### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending September 16, there were 162 deaths in the City of New Orleans, divided 94 white and 68 negro and 17 in children under one year of age. The following week was characterized by a very sharp drop in the death rate, only 122 deaths occurring as compared with 154 for the three year average. Of these 76 were white and 46 negro, while 19 were in small infants. The next week, which came to a close September 30, showed an increase of 19 in the number of deaths in the city; in spite of this increase the death rate was still well under the

three year average. The increase in part was due to the increase in number of deaths in small infants, 22 expiring, 14 of whom were white children. The racial distinction in the total number of deaths was 93 white and 48 negro. The death rate for the week ending October 7 remained somewhat stationary, 146 deaths being reported, of which 94 were white, 52 negro and 15 infants the latter divided practically evenly between the two races.

#### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the thirty-seventh week of the year, ending September 16, the astounding number of 369 cases of syphilis was listed. Other diseases in figures greater than ten include 37 cases of whooping cough, 32 of pulmonary tuberculosis, 29 of cancer, 26 of pneumonia, 17 of gonorrhoea, 14 each of malaria and diphtheria, 13 of typhoid fever and 10 of typhus fever. This large number of typhus fever cases is particularly interesting, being more than twenty times greater than the five year average for this week in the year. Four of these cases were reported in Calcasieu, two in Jefferson Davis and Orleans and one each in Iberia and Washington parishes. In the next week, which terminated September 23, there were reported 228 cases of syphilis, 41 of pulmonary tuberculosis, 35 each of gonorrhoea and cancer, 17 each of diphtheria and malaria and typhoid fever, and 16 of whooping cough. This week there were again listed an unusually large number of typhus fever cases, five in number, emanating from Calcasieu, Lafayette, Lafourche and St. Martin parishes. Syphilis showed a smart diminution in the number of cases listed during the week of September 30 with 147 appearing in the records; other diseases in figures greater than ten included 45 cases of pulmonary tuberculosis, 24 of cancer, 23 of whooping cough, 19 of pneumonia, 18 of gonorrhoea, 14 of typhoid fever and 13 of diphtheria. Again this week five cases of typhus fever were reported, two from Orleans Parish and one each from East Feliciana, Lafayette, and St. James parishes. For the first time in many months a case of rabies was reported. For the last week for which figures are available, namely that of October 7, there were listed 130 cases of syphilis, 29 of pulmonary tuberculosis, 27 of cancer, 16 of pneumonia, 13 of diphtheria and 12 each of malaria and typhoid fever. Physicians of the state evidently are on the watch out for typhus fever, four cases being reported, two from Caddo and one each from Calcasieu and Pointe Coupee parishes.

JULIUS E. ISAACSON, M. D.

(1894-1939)

The medical profession of New Orleans was shocked by the sudden death of Dr. Isaacson on October 17. He was Senior House Surgeon at Hotel Dieu where he had served his internship. For a period of time, Doctor Isaacson was connected with the Tulane University Medical School and in 1933 and 1934 he was President of the Lighthouse for the Blind. The medical profession of New Orleans loses one of their active leaders and younger men. His demise will be a real loss to his innumerable friends and patients.

#### WOMAN'S AUXILIARY

##### *Louisiana State Medical Society*

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

#### FIRST FALL MEETINGS

##### CADDO PARISH

The Woman's Auxiliary to the Caddo Parish Medical Society held the first meeting of the year on Wednesday, October 11, at the Woman's Department Club, Shreveport. The meeting was called to order by the President, Mrs. Clifford P. Rutledge, who gave an inspiring address in which she stated that her three objectives for the year were, more members, more voters, and more readers.

Mrs. S. M. Blackshear, President of the State Auxiliary, then discussed the aims and accomplishments of the State Auxiliary. Mrs. Blackshear was the guest of honor at the reception and musical which followed. The reception rooms were especially lovely with fall flowers of fuschia and

gold; there were many members to meet Mrs. Blackshear.

Mrs. N. Judson Bender,  
Publicity Chairman.

#### LAFAYETTE PARISH

The first quarterly meeting of the Woman's Auxiliary to the Lafayette Parish Medical Society met on October 19 at the home of Mrs. L. B. Long in Lafayette. Mrs. S. M. Blackshear, State President, who was a special guest at this meeting, addressed the members on the work of the Auxiliary in Louisiana. During the business meeting the following officers were elected: president, Mrs. L. A. Prejean, Scott; vice-president, Mrs. R. Sidney Hernandez, Duson; secretary-treasurer, Mrs. J. J. Burdin, Lafayette. Members and guests were entertained at tea after the meeting.

#### ORLEANS PARISH

At the first fall meeting of the Woman's Auxiliary to the Orleans Parish Medical Society, which was held at the Orleans Club on October 11, the members enjoyed a program dealing with world affairs. Mr. Gung-Hsing Wang, Chinese Vice-consul, discussed "The International Situation through the Chinese Window." Mr. Gung-Hsing Wang's talk was thoroughly instructive and interspersed with interesting highlights of his diplomatic career.

With the increased activities of the Red Cross all over the country, and a demand for extra supplies, auxiliary members will work at the Red Cross headquarters each Thursday, from nine to twelve. Rounding out the business session, a nominating committee was appointed to bring in the names of officers to be voted upon in December. These names may, according to the constitution, be supplemented at the November meeting by nominations from the floor.

A reception and tea followed at which Mrs. Roy

Carl Young, President-elect of the State Auxiliary, and Mrs. P. A. Donaldson, President of the Second District Auxiliary, were honored guests.

Mrs. Edwin R. Guidry,  
Publicity Chairman.

#### OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Medical Society met on October 12 in Monroe, at which time the Auxiliary entertained at a luncheon for the State President, Mrs. S. M. Blackshear, who has been visiting many of the parish auxiliaries. The meeting was well attended.

Mrs. Courtland P. Gray, President, presided over the business meeting, and the educational program which followed. Dr. Pracher, President of the Ouachita Medical Society, spoke to the ladies on "Blood and Blood Transfusion." Mrs. Blackshear gave an outline of the work being done throughout the state.

Mrs. J. W. Cummins,  
Corresponding Secretary.

#### SECOND DISTRICT

The Second District Auxiliary met at the home of Mrs. John E. Clayton in Norco on October 17. Mrs. P. A. Donaldson, President of the Auxiliary, presided.

This is one of the more recently organized, but active auxiliaries, and the meeting was attended by many out-of-town ladies who are interested in its growth and development. After the business session, the guests were entertained at a delightful tea. Mrs. Roy Carl Young, Covington, President-elect of the State Auxiliary, and Mrs. S. M. Blackshear, New Orleans, State President, were among the out-of-town visitors.

Respectfully submitted,  
Mrs. Edgar Burns,  
Press and Publicity Chairman.

## BOOK REVIEWS

*Hypertension and Nephritis:* By Arthur M. Fishberg, M. D. Philadelphia, Lea & Febiger, 1939. Pp. 779. Price \$7.50.

This standard work on hypertension and nephritis has been revised and brought up to date. Many chapters have been rewritten. Those dealing with Goldblatt's experimental production of hypertension are of particular interest at present. The fact that this book has gone through four editions speaks for itself. It is, in the reviewer's opinion, the most authoritative work on these subjects in the English language. It meets the needs of the practitioner as well as the student of nephritis and hypertension. It cannot be too highly recommended.

RANDOLPH LYONS, M. D.

*The Anaerobic Bacteria and Their Activities in Nature and Disease: A Subject Bibliography:* Compiled by Elizabeth McCoy and L. S. McClung. Berkeley, University of California Press, 1939. 2 vols.

The compilers have assembled about 10,500 original articles and monographs making a subject index of approximately 120,000 entries. This includes most of the important works performed on the anaerobic bacteria, and makes an excellent reference for one interested in this subject.

JOSEPH ZISKIND, M. D.

*Sensible Dieting and the Engel Vital Calorie Diets:* By William Engel, M. D. New York, Alfred A. Knopf, Inc., 1939. Pp. 408. Price \$2.50. This handy little book is suitable more for use

by the laity. Its main feature is a collection of breakfast, lunch and dinner menus for every day in the week given in detail and arranged according to the total calories required by each individual. These diets are preceded by a sensible and plain explanation of the method and result to be attained. It is a safe book to be placed in the hands of patients, who will find it a book good for quick reference.

NARCISSE F. THIBERGE, M. D.

---

*Principles and Practice of Ophthalmic Surgery:* By Edmund B. Spaeth, M. D. Philadelphia, Lea & Febiger, 1939. Pp. 835. Price \$10.00.

Ophthalmology is indebted to the author for the most complete textbook on this subject that has yet been written in English. It contains over 800 pages with 400 illustrations, which are exceptionally instructive. The table of contents, as well as the indices of authors and subjects, are complete. This volume presents a digest of our knowledge of ophthalmic surgery, and methods preferred by the author.

Dr. Spaeth's great experience, especially in the field of plastic surgery, is responsible for the generous chapters on exophthalmos, orbit and lid. Those interested in plastic surgery of the eye will find this book a veritable treasure house. Of especial interest are the sections on keratoplasty, muscle surgery, and glaucoma. The resumé of procedures recommended by the author in heterotropias, ptosis, and glaucoma are a valuable addition. Others could have been added to advantage.

Every experienced ophthalmic surgeon has acquired individualities of technic that have proved of value to him. Some of the author's pet ideas will appeal to one ophthalmologist, and others to another. These represent but minor differences of opinion in the application of fundamentals adapted to individual patients and surgeons, and in no way detract from the merits of this exceptionally complete volume.

Although somewhat detailed for the beginner, congratulations to Dr. Spaeth for having given us an outstanding book of which American ophthalmology can be proud.

CHARLES A. BAHN, M. D.

---

*Surgery of the Eye:* By Meyer Wiener, M. D., and Bennett Y. Alvis, M. D. Philadelphia, W. B. Saunders, 1939. Pp. 419; illus. Price \$8.50.

Wiener and Alvis have presented a hand atlas on ophthalmic surgery in which they have incorporated, together with a few selective surgical procedures, original work of their own, and their modification of steadfast technics.

Their book for the above reason is not rehash nor merely another atlas, or a duplicate of the work of Mueller, but in one small volume origi-

nality is brought forth gloriously and the art of ophthalmic surgery is advanced to a most pleasing extent.

The book, in particulars, is nicely gotten up. The artist, A. J. Hofsommer, merits praise for his labor, his pictures convey artistic ability and they tell a story in brief which otherwise would require pages of script. The contents of the book are well divided, the sequence of the stories pleasing and the procedures most enlightening.

THEODORE J. DIMITRY, M. D.

---

*The Student's Handbook of Surgical Operations:* By Sir Frederick Treves, G. C. V. O., C. B., LL. D., F. R. C. S. Sixth edition revised by Cecil P. G. Wakeley, D. Sc., F. R. C. S., F. R. S. E., F. A. C. S. (Hon.), F. R. A. C. S. New York, Paul B. Hoeber, Inc., 1939. Pp. 563; illus. pl. Price \$5.00.

This remarkable little book has been popular since its first appearance in 1892. It is small and concise though it contains 550 pages. The subject matter is divided into basic operations, such as, ligations of arteries, amputations, operations on the nerves and into regional operations, i.e., operations on the head, operations on the neck. The descriptions of different operations, though short, give the essential steps with no attempt to describe the technic in detail. The diction is clear and unobtrusive so the facts become in reading the only feature of which one is conscious. This little volume contains a surprising amount of information and can be recommended to students and even practitioners who may be interested in a cursory review of this type. The operations described are modern and in most instances are the procedures of choice. The limitations of the book are obvious: There is no effort to show indications for operations nor to discuss diagnosis. Its attempt to retain its size to one which might be considered very convenient for the student results in a certain incompleteness. Alternate procedures which might be better for a variable condition may not be discussed.

HOWARD MAHORNER, M. D.

---

*Functional Disorders of the Foot: Their Diagnosis and Treatment:* By Frank D. Dickson, M. D., F. A. C. S., and Rex L. Diveley, A. B., M. D., F. A. C. S. Philadelphia, J. B. Lippincott Co., 1939. Pp. 305; illus. Price \$5.00.

This book summarizes the knowledge and ripe experience of two of the foremost men in the practice of orthopedic surgery upon a subject much too neglected in our textbooks and scientific writings. The first chapter on evolutionary development of the human foot is an interesting and adequate review as an introduction to the second chapter on anatomy of the foot. In this chapter the essentials of structure as related to function are

well chosen and presented with good illustrations. Physiology of the foot is next presented clearly but without waste of words. Imbalance is discussed with relation to architectural defects, ligamentous weakness and muscle imbalance and is accompanied by excellent photographs and x-ray tracings.

Following these introductory chapters, the authors take up the routines for history taking and examination and proceed with excellent discussions of childhood foot disorders and their correction, foot imbalance in adolescence which properly includes the various accepted operative procedures for correction, and foot imbalance in adults. Under the latter heading the many defects of adult feet are well portrayed and a useful method of treating each of them is carefully presented with timely illustrations.

The final chapters dealing with toe deformities, operative measures for correction of hallux valgus and hammer toes, affections of the nails and skin, tarsal and metatarsal bones, affections of the heel, foot strapping and foot exercises are well written, practical and helpful.

The book is beautifully compiled,—the printing and illustrations far above the average seen in medical books. Every page and chapter of this complete monograph reveal thoroughness, painstaking care and originality on the part of the authors, combined with excellent and artistic presentation of their work by the publisher. It should be in the library of every practitioner and student who listen to complaints from patients regarding their feet.

GUY A. CALDWELL, M. D.

*Out of the Running:* By G. Gertrude Hoopes. Springfield, Ill., Charles C. Thomas, 1939. Pp. 158. Price \$2.00.

The autobiography by G. Gertrude Hoopes, "Out of the Running," is a revelation even to one who is in daily contact with handicapped patients, many of whom are very like her. Often one feels the need of knowing about these patients just the things she reveals in such a straightforward manner. Her attitude toward her own handicaps, her early struggles and frustrations of her efforts to make those about her comprehend her desires and thoughts, the tremendous strides she made mentally and physically as soon as she established means of communication and learned to read, should encourage everyone who shares the responsibility of the care of such children to spare no effort to assist them to gain a foothold on the ladder of progress.

The tremendous help this handicapped patient derived from religion in her early years and the evidence she presents that it has been the most patent factor enabling her to maintain self control throughout the many vicissitudes of her life remind us forcibly that physically impaired patients

should always have access to this source of strength and happiness.

This revealing autobiography should be read by everyone who has contact with or shares in the care of a spastic or defective child and by many who themselves are laboring under some incurable handicap. It should be of especial interest to psychologists, teachers, and religious workers as well as to physicians and nurses.

GUY A. CALDWELL, M. D.

*Cancer Handbook of the Tumor Clinic, Stanford University School of Medicine:* By Eric Liljencrantz, M. D. San Francisco, Stanford University Press, 1939. Pp. 99. Price \$3.00.

This is a well condensed volume of 99 pages devoted to the most important aspects of neoplasia as compiled in one of the leading tumor clinics of this country. The book opens with a general, but brief, discussion of the cancer problem. In this first chapter the theories of the etiology of cancer are brought up to date in a clear and concise manner.

The second chapter is devoted to the principles of radiation therapy, which includes in outline form those tumors which are radioresistant and those which are radiosensitive. The most common malignant neoplasms occurring in each system of the body are discussed from a standpoint of diagnosis, treatment and prognosis in separate chapters.

The book avoids controversy and, as a whole, is a very good condensation of what is seen in an active cancer clinic. It will be found useful as a reference and an easy means of review for those whose practice includes the management of cancer patients.

W. S. RANDALL, M. D.

*Surgical Treatment of Hand and Forearm Infections:* By A. J. C. Brickel, A. B., M. D. St. Louis, C. V. Mosby Co., 1939. Pp. 300. Price \$7.50.

It is an irrefutable fact that the hand of man is one of the most important parts of his anatomy. Interference with the function of that member of the body leads to tragedies which are still not adequately appreciated. Despite the fact that Kanavel et al have accomplished much by their pioneering efforts to portray the fundamental structural characteristics which determine the course or limits the ravages of infectious processes in the hand, our understanding is still imperfect, and further work is indicated.

Doctor Brickel has given to the profession a definite impetus to continue the work of that great pioneer, A. B. Kanavel. The anatomic studies included in his textbook are certainly worthy of comment. The undergraduate, however, may find some difficulty in comprehending the detailed dis-

cussion since it is written in highly technical terminology. A study of the diagrams themselves, nevertheless, is illuminating both to students and practitioner.

The roentgenologic studies of the spaces of the hand are comparable to those of Kanavel's book, but actually offer no improvement. Doctor Brickel does correlate ingeniously the clinical picture with his various demonstrations.

The body of the text naturally includes the disease processes encountered in the hand and forearm. The description of the various infectious processes occurring above the fingernails is an advance in the classification of these lesions. As well emphasized by Doctor Brickel, minor and benign processes are only too frequently poorly understood and improperly managed because of the lack of clinical experience of the attending surgeon.

He adds little or nothing to the clinical study of infections of the spaces of the hand, but the records of his clinical experiences revealed in his follow-up studies and end results do inspire the reader.

This book does represent a step forward in clearing up our all too clouded conceptions of this important subject, and is recommended to the profession.

L. SIDNEY CHARBONNET, JR., M. D.

---

*Heart Patients, Their Study and Care:* By S. Calvin Smith, M. D., Sc. D. Philadelphia, Lea & Febiger, 1939. Pp. 161. Price \$2.00.

This small volume, of one hundred sixty-one pages, divided into twenty-three chapters, is written for the general practitioner as a quick reference for information that is direct, concise and constructive. As a whole the book very nearly comes up to the intent of the author.

There are a few statements that would not be acceptable to all, such as the statement on page twenty that "genuine heart pain will be associated with definite physical findings." This is certainly not always true.

Chapter five is devoted to laboratory aids in diagnosis including electrocardiography. He places too much importance on this method of examination as he leads one to expect too much of the electrocardiogram.

The statement made on page seventy-three that "sinus arrhythmia is never found in a heart that is diseased," is open to question. All would not agree with his gloomy predictions as to the effect of athletics on youthful hearts. One cannot agree with his statement that "a slow deliberate pulse rate of sixty or less of the plateau type and a split first sound of the heart should arouse serious suspicion of syphilis." Especially would one disagree with the statement that "the electrocardiograph writes syphilis in bold vigorous strokes."

There is much good advice in this little book, yet it is a little weak on treatment and many of the

statements would not be accepted by cardiologists generally. It should prove useful to the practitioner who has not the time or the opportunity to keep abreast of all the newer methods of diagnosis and the treatments of heart disease.

J. M. BAMBER, M. D.

---

In the October issue of this Journal a review appeared of the new monograph by Livingston and Pack, titled "End-Results in the Treatment of Gastric Cancer." The statement was made that this volume was *reprinted* from the authors' larger work, "The Treatment of Cancer and Other Diseases." The latter volume has not yet reached publication, and thus the volume on gastric cancer is *preprinted* instead of *reprinted* from the larger treatise. In consideration of the favorable review give this sectional preprinting we shall look forward to the opportunity of reviewing the general work as soon as it appears.

---

#### PUBLICATIONS RECEIVED

Colwell Publishing Company, Champaign, Illinois: Dr. Colwell's Daily Log for Physicians, 1940.

F. A. Davis Company, Philadelphia: Diagnostic Signs, Reflexes and Syndromes standardized by William Egbert Robertson, M. D., F. A. C. P., and Harold F. Robertson, B. S., M. D., F. A. C. P. Gynecology by P. Brooke Bland, M. D., F. A. C. S., assisted by Arthur First, M. D.

Lea & Febiger, Philadelphia: A Textbook of Occupational Diseases of the Skin by Louis Schwartz, M. D., and Louis Tulipan, M. D.

W. B. Saunders Company, Philadelphia: Nutrition and Diet in Health and Disease by James S. McLester, M. D. Diseases of the Foot by Emil D. W. Hauser, M. S., M. D.

Charles C. Thomas, Springfield, Illinois, and Baltimore, Maryland: The Neurogenic Bladder by Frederick C. McLellan, M. S., M. D. Blood Groups and Blood Transfusion by Alexander S. Wiener, A. B., M. D.

The Williams and Wilkins Company, Baltimore: Treatment of Some Common Diseases edited by T. Rowland Hill, M. D. (Lond.), M. R. C. P. (Lond.). Handbook of Bacteriology by Joseph W. Bigger, M. D., Sc. D. (Dublin), F. R. C. P. I., M. R. C. P. (Lond.), D. P. H., M. R. I. A. A Synopsis of Surgical Anatomy by Alexander Lee McGregor, M. Ch. (Edin.), F. R. C. S. (Eng.). Physiological Chemistry by Albert P. Mathews, Ph. D. Obstetrical Practice by Alfred C. Beck, M. D. The Dysenteric Disorders by Philip Manson-Bahr, C. M. G., D. S. O., M. D., F. R. C. P. Stedman's Practical Medical Dictionary by Thomas Lathrop Stedman, A. M., M. D., and Stanley Thomas Garber, B. S., M. D.



# New Orleans Medical

and

# Surgical Journal

Vol. 92

DECEMBER, 1939

No. 6

## CONVALESCENT SERUM IN THE PREVENTION AND TREATMENT OF COMMON CONTAGIOUS DISEASES IN CHILDHOOD\*

R. T. LUCAS, M. D.  
SHREVEPORT, LA.

Convalescent serum therapy goes back at least as far as 1897 when scarlet fever convalescent serum was used in treatment of this disease. For a long period of years its use was almost forgotten. In the comparatively last few years its use has become increasingly popular. Its value is fully established. As you know there are serum centers in a number of the larger cities where blood is taken from convalescents, tested, stored, and as needed, the serum is distributed to the physicians of the community. Many valuable data are being accumulated and the results obtained justify the prediction that the demand for convalescent serum will become so general as to necessitate the establishment of more serum centers.

### MEASLES

Our first experience in this field dates back to the use of adult whole blood from individuals recovered from measles a number of years previously. These data are summarized in a previous paper by my associate, C. H. Webb<sup>1</sup>.

In the field of passive immunity the work of Charles F. McKhann<sup>2</sup> with placental extract is a valuable contribution. McKhann

has shown that placental extracts contain antibodies against measles, poliomyelitis, pertussis, diphtheria antitoxin and anti-streptolysin and a substance which blanches the rash of scarlet fever. The practical result of this work so far is the development of immune globulin from placental extract used in the prevention or attenuation of measles. This placental extract or immune globulin occasionally causes a reaction, but does not sensitize and has the advantage over convalescent serum and blood in its availability and in the small dosage required.

The use of serum from a recent measles convalescent is more potent than serum from one recovered from measles years previously. The highest titer of serum is obtained from seven to ten days up to one or two months after defervescence. As a practical solution the simplest and most convenient method is to use the whole blood of the parent or a kinsman who has previously had measles and inject it immediately into the patient. Of course syphilis and malaria always should be ruled out. The amount of blood required is twice the amount of serum desired. The amount necessary depends upon the potency of the serum, the time which has elapsed since exposure, the age of the patient, possibly the degree of exposure, and whether complete protection or only attenuation is desired. Results are gratifying and are surprisingly predictable in the majority of cases when the date of exposure is known and the serum or blood or placental extract is given in the incubation period. Two c.c. of immune globulin is the average dose for chil-

\*Read at the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 26, 1939.

dren under three years. Three c.c. of convalescent serum is the minimal dose for infants. For older children 0.5 c.c. is given for each half year; that is, for ten years, 10 c.c. is given (Silverman<sup>3</sup>).

If given within five days after exposure, attenuated measles is usual. With complete protection the immunity lasts only two or three weeks and cannot be relied upon for more than ten days. If attenuated measles results, active lasting immunity usually follows. Comparable dosages are convalescent serum 5 c.c., adult serum 25 c.c., whole blood 65 c.c. Modification or attenuation of measles by the use of these agents usually results in a prolongation of the incubation period up to as much as thirty days. Clinical symptoms during the period of invasion are milder than usual. Coryza and photophobia are mild, if not absent. Koplik's spots are often absent. The eruption is usually scant, and the general symptoms are less marked. Complications are rare.

Levinson and Conner<sup>4</sup> reported on the use of measles convalescent serum in the treatment of 16 cases, 20 to 60 c.c. of the serum being given intravenously. The result was usually an abrupt fall in temperature. There was little effect on the rash, if the serum was given after the rash had appeared. If given before the rash appeared, the resulting rash was pale, discreet, and the lesions were usually few and they did not coalesce. The patients did not appear ill. The most marked effect was upon the cough. They<sup>4</sup> recommend 20 c.c. in the early catarrhal stage, 40 to 60 c.c. later in the catarrhal, and 80 to 100 c.c. after the appearance of the rash. They advise giving the serum intravenously.

#### SCARLET FEVER

Convalescent serum in treatment has given possibly its best results in scarlet fever. As in measles the highest titer of convalescent serum is obtained from patients fairly recently recovered, blood being taken from the twenty-first day after the disease started to the end of six months. Repeated bleedings may be made on the same individual provided not over 100 c.c.

of blood per week are exceeded. The blood is preferably taken when the donor has been fasting. The serum centers collect the blood, culture and test it with Wassermann and Kahn tests. Twenty to thirty serums are pooled, preservative added and the serum put up in ampuls. Any excess of supply of serum is usually dried and stored.

Convalescent serum has the advantage over commercial antitoxin in that it is human (homologous) and, therefore, there is no danger of sensitization or antiphylaxis. Levinson and co-workers<sup>6</sup> state that pooled serum is compatible with any blood group and that reactions did not occur following intravenous administration of massive doses of serum in a large series of cases reported, although at times there was a 12 hour rise of temperature. Toomey<sup>5</sup> states that human serum does not cause immediate reactions, but he has seen maculo-papular rashes develop from seven to fourteen days after administration of the serum. These rashes are fleeting in character and appear like a mild erythema multiforma. Hoyne<sup>7</sup> says when human serum is used intravenously typing is not absolutely necessary, but that it may be advisable to type the serum against cells.

Disadvantages of convalescent serum over commercial antitoxin are the lack of availability and possibly the low antitoxin content of the convalescent serum, although antitoxin content is not a proper standard of efficacy for comparison as a therapeutic agent.

In our series of 30 patients with scarlet fever treated with convalescent serum the results were most satisfactory. The cases varied from mild to severe. Most patients were treated with sulfanilamide. In the few patients not treated with sulfanilamide results appeared equally satisfactory. In some cases the results were so good as to cast doubt on the diagnosis in the minds of the parents. One patient had suppurative otitis when the scarlet fever developed; one patient developed cervical adenitis which did not suppurate; no patients were left with permanent kidney damage. No other complications developed.

In the use of convalescent serum for prophylaxis we had one case which might be classed as a failure. This child, who was in constant contact with an older brother, developed scarlet fever on the twelfth day after the first injection but was only slightly sick one day, having received a second injection of convalescent serum eight to twelve hours before the rash appeared. Levinson<sup>8</sup> reports 97.7 per cent of home contacts were protected by prophylactic injection of convalescent serum.

#### WHOOPING COUGH

Bradford<sup>9</sup> of Rochester, New York, reviewed the literature on convalescent blood in whooping cough and reported his own series of 58 children mostly under three years who were given either 10 c.c. of serum taken in the eighth week of convalescence or of from 10 to 20 c.c. of whole blood taken from an adult, usually a parent, who had had the disease previously. His conclusions were that results were encouraging and that immune blood is probably effective in the prevention and modification of whooping cough if given before catarrhal symptoms appear.

Meador<sup>10</sup>, analyzing results in Detroit, states that 72 per cent of treated patients were fully protected. He used 2 to 12 or more c.c. of convalescent serum, the size of the dose depending on the age of the child and the time elapsing since exposure, the average dose being 10 c.c. of pooled blood serum taken from patients recovered from whooping cough. The injection was given subcutaneously. Meador says not to expect protection when the serum is given after half of the incubation period is gone (average incubation twelve days). Patients are considered a source of infection for four weeks.

Kendrick<sup>11</sup> and her associates have shown that adults immunized with whooping cough vaccine have a potent serum for prophylactic purposes. Data<sup>12</sup> have been accumulated which show that antibodies or agglutinins, precipitins, complement fixing bodies, and opsonins are present in the blood of those who have been immunized. These bodies begin to appear about three

weeks from onset, increase to a maximum in a few weeks and then recede to a smaller amount in about six months. Any time later the body seems to respond rapidly to a further increase of antibody when properly stimulated.

It appears from the experience of many of those who have had the greatest opportunity for study and observation that convalescent serum is a more effective agent than vaccine in the prevention of whooping cough in children already exposed. Of course such immunity is passive and disappears in two or three weeks and cannot actually be counted upon for full protection more than ten days. This holds true for convalescent serum given for protection in other diseases.

#### MUMPS

Thalhimer<sup>13</sup> reports good results in the prophylaxis of mumps with the use of convalescent serum, making allowance for the difficulty in evaluating results because of the slight contagiousness of mumps in comparison with measles, whooping cough or scarlet fever. He obtained protection in 44 of 45 children one to 15 years old given 20 c.c. of convalescent serum. Another series was in a boys' camp which was exposed to three boys with mumps where 16 received serum and were protected. The only ones developing mumps were two who did not receive the convalescent serum.

Regan<sup>14</sup> gave 2 to 4 c.c. of blood serum taken from convalescents 10 to 20 days after mumps started and felt that it protected if given before the seventh day after exposure.

Toomey<sup>5</sup> states that 40 to 60 c.c. of mumps convalescent serum will alleviate complications as orchitis or oophoritis.

#### CHICKENPOX

Chickenpox is usually such a relatively mild disease that it may be hardly worth the trouble to try to use convalescent serum in prevention or treatment. Thalhimer<sup>13</sup> used convalescent serum with a large number of exposed children and reported conflicting results. It is his opinion that chickenpox convalescent serum has some

efficiency though it is small as compared with measles convalescent serum in preventing measles. He thinks a dose of convalescent serum less than 40 c.c. is useless.

#### POLIOMYELITIS

In the presence of such extreme differences of opinion as to the value of convalescent serum in the treatment of poliomyelitis, I feel some hesitation about including it in this discussion. There are many who are unwilling to accept at their face value the results of Park's study showing that non-serum-treated patients fared as well as the serum-treated ones. It is repeatedly observed that in individual patients treated with serum there is every reason to feel that the serum was of marked value. There are those who feel that serum should not be given and that it may be harmful. Even though it is recognized that the incidence of paralysis varies considerably in different epidemics, the experience with convalescent serum in Chicago, reported by Levinson and associates,<sup>15</sup> is distinctly encouraging. He reports less than 2 per cent paralysis in over 200 consecutive cases. His report shows marked reduction in mortality in bulbar cases.

These results were obtained by striving for early diagnosis and the administration of massive doses of serum varying from 100 c.c. to 200 c.c., all given intravenously. The same doses were repeated in 12 to 24 hours unless and until there was a cessation of the active infection indicated by temperature drop, decrease in prostration and arrest in the progress of the disease. Other measures, such as complete rest and proper muscle care naturally received proper attention.

Aycock and Kramer<sup>16</sup> and others have found that normal urban adults without a history of poliomyelitis had blood serum with virus neutralizing properties as potent as the serums of recovered poliomyelitis patients. These studies seem to indicate that the serum of one not having had poliomyelitis should be as effective in treatment as that from a poliomyelitis convalescent. In any case it is best to use the pooled serum of a number of individuals, for the

titer varies greatly with different individuals. If the serum is available it should be used by preference, but if not available, especially if the patient is anemic, malnourished or in poor physical condition, blood transfusions may be of considerable benefit.

In prophylaxis or treatment of these various diseases it is well to keep in mind the many factors responsible for success or failure. The donor of the serum must definitely be a convalescent from the disease for which the serum is being given, and he must not have received convalescent serum himself. The more recent the convalescence, the more potent the serum. Individual serums vary in titer, and, especially in such diseases as scarlet fever where different strains may not be specific for each other, a pooling of serums gives best results, and pooling of serums is always desirable. The earlier in incubation, the smaller the dose necessary, and the better the results. The later in the incubation period of the disease, the larger the dose must be. The therapeutic dose of convalescent serum should be five to ten or more times the prophylactic dose.<sup>4</sup>

The method of administration makes considerable difference in efficiency. In the order of efficiency are intravenous, intraperitoneal, intramuscular, and subcutaneous administration. In this connection the following experiment is worthy of recording. Thalhimer and associates<sup>13</sup> report experimental studies in the absorption rate of serum in rabbits: Five minutes after intravenous injection of serum, specific antibodies were present at maximum titer in exactly the dilution calculated on the basis of the amount of serum injected and the blood volume of the animal. The titer of the antibodies studied, agglutinins and hemolysins, did not decrease in these normal animals until after 24 hours, diminishing slowly, so that two weeks later a low titer was present.

When the same amount of serum was injected into the muscles of the hind leg, it took 14 to 16 hours on an average for the maximum titer to appear in the blood, and

its level then was only half that found five minutes after the intravenous injection of the same amount of serum. The titer began to diminish from this lower level 24 hours after the serum was injected. It would appear, therefore, that the intravenous injection of serum is the method of choice, and that there is no advantage in following an intravenous injection with intramuscular injections.

In using convalescent serum the possibilities of syphilis and malaria and the possibilities of contamination must be constantly borne in mind.

#### SUMMARY

Measles may be prevented or attenuated by the use of placental extract, convalescent whole blood, or serum. Because of its availability and the small dose required, placental extract is the agent of choice. None of the above sensitize the patient to subsequent injections. Convalescent serum in large doses is often beneficial in the catarrhal stage. Later in the disease the effects are less noticeable.

Scarlet fever convalescent serum is highly effective in both prophylaxis and treatment. Its use greatly reduces the incidence of complications.

Whooping cough convalescent serum is more effective than vaccine in the prevention of whooping cough in a person already exposed. Mumps convalescent serum is usually effective in the prophylaxis of mumps and large doses may alleviate complications.

Results obtained in the Chicago epidemic and in individual cases with the use of convalescent poliomyelitis serum indicate apparent benefit from its use if given in the preparalytic stage. The serum from non-convalescent adults may be as effective in treatment as serum from a poliomyelitis convalescent.

Best and most consistent results are obtained with pooled serum. The size of the dose required depends upon whether attenuation or prevention is desired, the time elapsing since exposure, the size of the individual, and possibly the degree of ex-

posure. Best results are obtained by intravenous administration, with intraperitoneal second and intramuscular injections third in efficiency. The question of syphilis and malaria or other blood-borne disease, as well as the possibility of contamination, must be constantly guarded against.

#### REFERENCES

1. Webb, C. H.: Antitoxins, serums and vaccines in the prevention of childhood diseases, *Tri-State M. J.*, 5:1022, 1933.
2. McKhann, Chas. F.: The prevention and modification of measles, *J. A. M. A.*, 109:2034, 1937.
3. Silverman, A. C.: Serum prophylaxis in measles epidemic, *J. A. M. A.*, 91:1786, 1928.
4. Levinson, S. O., and Connor, Jas. A.: Round table discussion on convalescent serum therapy, *J. Ped.*, 14:255, 1939.
5. Levinson, S. O., McDougall, C., and Thalheimer, W.: Acute anterior poliomyelitis in Chicago area in 1931, *J. A. M. A.*, 99:1058, 1932.
6. Toomey, John A.: Round table discussion on passive prophylaxis against infection in childhood, *J. Ped.*, 10:98, 1937.
7. Hoynes, A. L.: Round table discussion on passive prophylaxis against infection in childhood, *J. Ped.*, 10:98, 1937.
8. Levinson, S. O., Penruddocke, E., and Wolfe, A. M.: Human convalescent serum and its application to acute infectious diseases, *Ill. Med. J.*, 72:514, 1937.
9. Bradford, W. L.: Use of convalescent blood in whooping cough with review of literature, *Am. J. Dis. Child.*, 50:918, 1935.
10. Meader, F. M.: Round table discussion on convalescent serum therapy, *J. Ped.*, 14:255, 1939.
11. Kendrick, Pearl: Reinforced convalescent or hyper-immune serum in passive immunity to pertussis, *J. Ped.*, 9:118, 1936.
12. Povitzky, O. R., and Worth, E.: Agglutination in pertussis; its characteristics and its comparative value in clinical diagnosis, and in determination of genus and species, *Arch. Int. Med.*, 17:279, 1916.
13. Olmstead, M. P., and Povitzky, O. R.: The complement fixation reactions of the Bordet-Gengou bacillus, *J. Med. Research*, 33:379, 1916.
14. Singer-Brooks, Charlotte, and Miller, John J. Jr.: The opsonocytaphagic test in children with pertussis and in children vaccinated with *H. pertussis* antigens, *J. Clin. Invest.*, 16:749, 1937.
15. Bradford, William L., and Slavin, Betty: The opsonocytaphagic reaction of the blood in pertussis, *J. Clin. Invest.*, 16:825, 1937.
16. Bradford, William L., Mikell, Robert, and Slavin, Betty: The effect of immune blood upon the opsonocytaphagic power of the blood in pertussis, *J. Clin. Invest.*, 16:829, 1937.
17. Thalheimer, William: Round table discussion on convalescent serum therapy, *J. Ped.*, 14:255, 1939.
18. Regan, J. C.: Serum prophylaxis of epidemic parotitis, *J. A. M. A.*, 84:279, 1925.
19. Levinson, S. O.: Five year review of anterior poliomyelitis in Chicago area, *Ill. Med. J.*, 70:296, 1936.
20. Aycock, W. L., and Kramer, S. D.: Immunity to poliomyelitis in normal individuals in urban and rural communities as indicated by neutralization test, *J. Preventive Med.*, 4:189, 1930.

#### DISCUSSION

Dr. H. Aubrey White (Alexandria): There is no question that the prevention of measles is a condition which demands that the preventive con-

valescent serum be given early, and that period is hard to determine because we do not know when patients are exposed. They are going to school and may have a running nose and slight fever, and at this period most patients do; therefore, it is a problem when to give the serum to prevent the disease. Fortunately, there has been developed an immune globulin which if given to known exposed patients on the fourth day will possibly attenuate or prevent the disease entirely.

We are especially anxious to protect those children we do not want to have measles, for instance, a patient I have, a diabetic seven years old. I have treated this child since she was 23 months old, and fortunately, she is doing very nicely. Her brother was taken ill with measles, and then the question came up what to do with Mary Jo. On the fourth day, I gave her 2 c.c. of Squibb's immune globulin; on the ninth day, I repeated the dose of 2 c.c. and thought for a while she would not develop measles. However, on the twenty-eighth day, Mary Jo came down with a mild case of measles. Fortunate perhaps that she did because now she is immune for the rest of her life.

As to the prevention of whooping cough, there is not a lot that has been written. I was able to find 14 series of cases for which I have figures here, including Bradford's 58 cases reported in 1937. Of those given adult whole blood in the incubation stage (182 cases in all), 147 did not take the disease, 26 had mild cases and seven fairly severe cases, a percentage of 3.84. In the series of 94 cases given whole blood in the catarrhal stage, 73 had the disease in a mild form and 21, or 22 per cent rather severe cases. In the series of 34 cases given adult whole blood in the paroxysmal stage, only one had the disease in a mild form and 33, or 97 per cent, quite severe cases. Therefore giving adult whole blood in the incubation stage will, in a large percentage of cases, prevent whooping cough.

As to poliomyelitis, I believe those of us who have to make a living practicing medicine should give adult or convalescent serum until we find something better. If we give it in the preparalytic stage, it does no harm and is probably the best treatment we have today.

Dr. Ruth Aleman (New Orleans): It is my opinion that no child under five years should be permitted to have measles or whooping cough if it can possibly be prevented.

Sufficiently encouraging results have been obtained in protecting infants and young children from the common contagious diseases by giving adult immune serum or whole blood when convalescent serum can not be obtained. The general practitioner who treats children should feel no hesitancy in giving whole immune blood or immune serum to those exposed to contagious disease in whom infection might be disastrous.

Dr. Paul S. Parrino (Franklin): All this is of

interest to the health officer. I think that measles and whooping cough are taken too lightly by the public. We should have a campaign to educate people about the dangers of measles and that children under five, especially those under two, should be prevented from contracting measles, if possible.

I have a great interest in this immune globulin and placental extract and hope there will soon be sufficient reports on it so that it will be more generally available in public health programs. I would like Dr. Lucas to say just what he thinks the outlook is now for measles prevention being made a part of the generalized public health program, that is, the routine administration of immune globulin or similar preparation to all very young and debilitated children who have been exposed to measles, or, does he believe that such immunization should be kept only in the hands of the individual pediatrician.

Dr. R. T. Lucas (In closing): A great deal of data are being accumulated in the use of convalescent serum which will increase our knowledge of its value and limitations. It is particularly effective in the prevention and treatment of scarlet fever. As Dr. White said, the date of exposure is not easy to establish in some cases. In measles, for either prophylaxis or attenuation, whether one uses immune globulin, serum, or blood, the results cannot be accurately estimated unless the date of exposure is known. If there are two or more children in the family and one has measles, you date the contagious period from the beginning of symptoms and if the well child is given an injection of either of these, it will prevent the development of measles in the majority of cases, if given within the first few days of the contagious period. After the fourth, fifth or sixth day, you usually will not get prevention, but will get attenuation.

Factors affecting the result are the potency of the material, size of the child and the period elapsing since exposure. It is impossible to be absolutely sure whether an individual child would have developed the disease or not, but statistically his chances of contracting it can be estimated. Allowances must be made for failures and it is best not to be too dogmatic as a result of your successes.

The value of convalescent serum in poliomyelitis is a controversial question. Some physicians will not use it. Some even feel that it might be harmful and do not use it. All of us should have an open mind about its possible value.

Most of us have had cases where convalescent serum or whole blood transfusions apparently gave good results. In anemic and malnourished children, whole blood may be more beneficial than the serum alone. However, it does not contain antitoxin and, therefore, should be given in two to two and one-half times the size dose as that of the serum desired.

The availability of convalescent serum may always be something of a problem.

In answer to Dr. Parrino's question, let me say the immunity to or attenuation of measles by the agents now available have considerable limitations. It seems more the problem of the individual physician than of the public health officer until considerable advances are made, giving this procedure more general application.

---

O

## RADIOLOGY VERSUS PSEUDO-RADIOLOGY\*

STAKELY HATCHETTE, M. D.

LAKE CHARLES, LA.

The object in the presentation of this paper is not that of bringing anything new in the way of interpretation or improvement of technic to the radiologist, but rather to try to impress upon the general practitioner that there are dangers which beset our special field of work, and that these dangers can best be avoided through the employment of a competent radiologist who has been specially trained to recognize and avoid these dangers. Few errors are committed by men who rightfully call themselves radiologists, for Louisiana is singularly fortunate in having only well trained men in this field. Mistakes I have encountered have been made by men we must call "pseudo-radiologists"; that is, general practitioners and a very few specialists in other branches of medicine who were either ignorant or forgetful of the elementary and fundamental principles of radiology whether used for diagnosis, therapy, or both.

### FACTORS AFFECTING THE VALUE OF RADIOLOGY

As all of you know, radiology is a new field of medical specialization and, in addition to this, it is probably the most valuable single aid in the diagnosis and treatment of human ailments. Because of this there has quite naturally been a normal desire on the part of all of us to make the greatest possible use of its facilities. Consequently,

at least three malignant factors have arisen which have grown to such an extent that they now seriously affect the life of radiology as a specialty, and which, unless checked through cooperation and understanding, will be likely to discourage competent but thoughtful physicians of the future from taking it up as their specialty.

### INADEQUATE EQUIPMENT

The first of these conditions has been the widespread activity on the parts of the manufacturers of small, inexpensive x-ray machines which has resulted in the placement of these units in the offices of quite a large percentage of non-radiologists in our State. Just as one of the soap manufacturers some years ago had the slogan "Is there a little Fairy in your home?", so the manufacturers of these small x-ray units seem to have adopted the slogan "Is there a little x-ray machine in your office?" to ask the physicians of today. Their representatives have not confined themselves to asking the question of reputable physicians either, but have enlarged it to include every irregular practitioner, regardless of his cult, who can legally operate one. I seriously doubt whether there be a physician anywhere in the United States, irrespective of the size of his town, who has not been called upon by one of the charming young gentlemen employed as x-ray salesmen and been high-pressured by the suggestion that he owes it to himself to increase his practice and his monthly income by doing his own x-ray work. They usually point out that Dr. Doe, whose office is just down the street, bought one of their machines recently (or one made by a competitor which is not nearly so efficient as the one they want to place in the doctor's office) and his practice increased to such astounding proportions that he is hardly able to take care of it. Few are the physicians, I am sorry to say, who take the time and effort to check up on such statements. In addition to this, they will tell you that your own office girl can be taught to make excellent films in just one day's time and that all the physician has to do is interpret his own films which they represent as being ridiculously easy. They

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

will tell you that you can do your own industrial work by setting fractures under the fluoroscope but usually fail to mention that such a thing is fraught with danger for both the physician and his patient. It has been my personal experience to have seen several patients who have thus received severe x-ray burns, three physicians suffering from acute burns of the hands, about seven physicians suffering from severe atrophic changes of the fatty tissues of the hands, one who had had to have both hands amputated because of x-ray burns, and two more who have since died as a result of cancer of the hands which resulted from x-ray burns and which progressed to general metastases. As I have just said, these things are "overlooked" in sales talks. To continue, they tell the physician that he should experience no difficulty in making examinations of his patients' chests, hearts, gastrointestinal tracts, or anything else he might desire, and so make such a favorable impression upon his patients that he should be able to pay for the machine in a year at the most. Before leaving general practice to specialize in radiology I was told all of these things so I know, from personal experience, that such sales talks are made. I am sure that many of you can bear me out in my statements for those of you who have been overlooked are more fortunate than you realize.

#### INADEQUATE TRAINING

Out of this super-salesmanship has arisen the second malignant factor threatening radiology, which is pseudo-radiology. After a physician has gone to the expense of putting in an x-ray machine, it is only human nature that he should try to handle as much of his x-ray work as possible. For some reason, it seems that this otherwise intelligent physician who has bought the machine continues to believe the salesman's statements and he thinks the making of films of bone injuries and the interpretation of the findings to be very, very simple. What has occurred as a result of this? The result is that there are many physicians who are absolutely unfamiliar with the

normal roentgenologic appearances of normal bones and joints, of normal chests, of normal gastrointestinal tracts, making their own films in their own offices, interpreting these films, and even basing their treatments on these x-ray diagnoses. Unless the courses of study in our medical schools here in the South have been changed radically since my graduation twelve years ago (and I do not believe that they have), it is impossible that the average general practitioner could obtain the barest essentials of radiologic work unless he had spent some time and considerable effort in the study of radiology in some hospital having a good radiologic department. How many of these men owning and operating small x-ray machines have had the time and money required to do such a thing? I am afraid that there are not many, and I, personally, do not know of a single one. At best, the untrained man usually makes inadequate examinations, frequently makes incorrect interpretations, and yet he will go right ahead and base the rationale of his treatment upon such a foundation. Is it any wonder why patients so often become disgusted with, and distrustful of, the field of radiology or, in the light of what has previously been said, can the patient be blamed if he is afraid of getting burned? In fairness, I must state that burns are not nearly so frequent now as they were in the days when machines were difficult to regulate or control, but they still occur often enough for patients to know of them and to be afraid of irradiation.

As an extreme example of a diagnostic error committed in my section of the state by a general practitioner who owns and operates an x-ray machine, a woman from my city went to this man's town for examination. He fluoroscoped her abdomen without following up with the making of a film, without the aid of contrast media of any kind in the uterus and tubes or the intestinal tract, without her having assumed any position other than the erect, without even the simple aids of accommodating his eyes to darkness or palpation of the abdomen during fluoroscopy, and he frightened



her very badly by telling her that she had a large ovarian cyst. She consulted a surgeon who disregarded this diagnosis and who sent her to me for a "flat-plate" examination of the abdomen to look for urinary calculi. A large, stag-horn calculus was found in the pelvis of the right kidney. Its removal resulted in a complete cure of her condition. I do not cite this example as being the usual result of fluoroscopic or roentgenographic examinations by untrained men, for such is not the case. The operator of this particular x-ray machine seems to have a flair for the fanciful in his fluoroscopic diagnoses, yet he has a very large following in southwest Louisiana and throughout a good portion of east Texas. He gives what he calls "a fluoroscopic examination", a physical examination, a bottle of pink medicine and a box of pills, all for six dollars. If x-ray films are made the price is a little more. Examinations of this kind, which the public calls x-ray examinations, have done a great deal to undermine public confidence in radiology throughout my whole section, for this man claims to base all of his diagnoses on his so-called x-ray examinations, calls the family and friends in to witness the wonders of his fluoroscopy and, if his treatment fails, the patients draw the conclusion that x-ray examinations are inaccurate.

Once again, I would impress upon you that this sort of thing is not characteristic of those operating small x-ray machines. It is only the extreme example of one man. The vast majority of owners of these small units are honest, conscientious men who do their best in their patient's behalf. I do say, however, that most of the operators of these small machines are daily putting themselves in the dangerous position of making possible incorrect diagnoses or giving improper therapy due to their lack of training in either interpretation or treatment and, though their intentions may have been only the best, a missed or mistaken diagnosis or improperly administered radiation therapy may result in serious consequences for both the physician and his patient.

## INADEQUATE CONCEPTION OF LAITY

The third malignant condition which encourages pseudo-radiology may perhaps be ascribed to its youth when compared to the other specialties. It is the general lay impression that roentgenograms and x-ray machines are simply pictures and picture taking machines. I am sorry to say that there are also a few physicians who have progressed so little as to share the same opinion and, when telephoning the radiologist to make an appointment for a patient, one might get the idea that they are calling a professional photographer to request a "sitting" for a portrait. Learned judges in some of the states of the United States have even gone so far as to hold that a roentgenogram is an x-ray photograph and that neither the making nor the interpretation of these films was necessarily a part of the practice of medicine. One state that I know of has a judge who recently held that while a chiropractor could not prescribe an enema because it was necessarily an act of the practice of medicine, yet he could make and interpret x-ray films because neither of these acts was a part of the practice of medicine. Donaldson,<sup>1</sup> in his book entitled "The Roentgenologist in Court," cites numbers of similar incidents in others of our states. If our learned courts have no better concept of the interrelationship of radiology and medicine, and with so many medical men seemingly obtaining their entire radiologic educations from x-ray salesmen, perhaps the general practitioner should not be blamed too much for his honest conviction that his opinion regarding the findings on a roentgenogram or his ideas regarding radiation therapy are fully as good as those of a well trained radiologist. Yet, how many of these men would buy a cystoscope and consider themselves urologists or purchase a scalpel and consider themselves as competent surgeons? The comparison seems rather ridiculous when first thought of, but careful consideration will show the underlying principles to be the same. Some of these general practitioners with x-ray machines feel that we radiologists are jealous of the work they

take away from us and that we are trying to keep it for ourselves. I assure you that such is not the case. Most of these patients who are x-rayed by the general practitioner eventually come to the radiologists anyway.

#### QUALIFICATION FOR CERTIFICATION OF RADIOLOGISTS

The radiologist knows that both roentgenographic interpretation and radiologic treatment require an exactitude that tries the patience of the general practitioner, an expert knowledge of all conditions that might be met with, a constantly changing technic, and a thorough knowledge and understanding of clinical medicine and surgery. In recognition of the need of this training, the American Medical Association now refuses to list anyone as being a radiologist in their Directory unless that person has proved his knowledge of radiology by passing the examinations of the American Board of Radiology. Before taking these examinations the applicant must have:

1. Graduated from a medical school of the United States or Canada that is recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Completed an internship of not less than one year in a hospital approved by the same Council.

3. Had three years' training in radiology or sufficient experience in lieu thereof.

On January 1, 1942, the American Board of Radiology has announced that a special course of training will be required of all applicants who wish to take their examinations. This special training will require that:

1. The applicant must have had a special period of study after the internship of not less than three years in an institution or radiologic department recognized by the same Council and the Board of Radiology as competent to provide a satisfactory training in the field of radiology, or equivalent training acceptable to the Board.

2. This period of specialized training shall include: (a) Graduate training in

pathologic anatomy, radio-physics and radiobiology; (b) an active experience of not less than twenty-four months in a radiologic department recognized by the Board and Council as capable of providing satisfactory training; (c) examination in the basic sciences of radiology as well as in the clinical aspects thereof.

These increasingly difficult requirements are in keeping with the policy of the American Board of Radiology of constantly trying to improve the high standard you should expect of your radiologist.

#### CONCLUSION

With what has previously been said as its basis, would it not be possible for organized medicine in Louisiana to follow the lead of the American Medical Association in setting up certain minimal requirements that must be met before one may class himself as a radiologist? It seems only reasonable to ask that those who have so educated and equipped themselves should be recognized as better prepared to use x-rays and radium in the diagnosis and treatment of disease by these methods, and I believe that the general practitioner and the public, as well as the radiologist, would profit by it if some kind of limitations might be placed upon the employment of these dangerous agents by physicians who have not been educated and trained in their proper uses.

#### REFERENCE

1. Donaldson, Samuel Wright: *The Roentgenologist in Court*, Charles C. Thomas, Springfield, Illinois, 1937.

#### DISCUSSION

Dr. G. C. McKinney (Lake Charles): If I interpret Dr. Hatchette's paper correctly, it would not condemn so much the man who is not a radiologist who does x-ray work, but is aimed at the situation that makes such a thing possible. The general practitioner needs the same foundation to do x-ray work as pathology or any other specialty in the practice of medicine. Probably the trouble has arisen from the fact, I think, that the general practitioner looks on the x-ray film as a picture. There is no such thing as an x-ray picture, and we will never get far if the general practitioner will not learn that. The x-ray film shows differentiation of tissue and what we must be able to do is translate that into terms of pathology.

I have seen a general practitioner go into court

and testify that the normal white lines found transverse to long bones were fractures; and that the sesamoid bones normally found under the great toe were scar tissue as result of tendon tear. I have seen an orthopedic surgeon make a diagnosis of Ewing's sarcoma when the film literally shrieked syphilis.

Dean Lewis collected thirty cases in which amputation had been done for bone sarcoma which proved to be syphilis in every case.

Dr. Waldemar R. Metz (New Orleans): I would just like to add a word of emphasis to this very timely paper that the doctor has brought to us this morning. I think the title of it might well have been, "The Use and Abuse of X-ray." Added to what he has quoted of some cases of x-ray burns following injudicious use of radiotherapy, I want to present to you this morning one of these major catastrophes.

(Showing slides) This lady was referred to me by one of our dermatologists with a view to plastic repair for cicatricial contractures of both hands and forearms. For a period of years she had been receiving x-ray therapy for some type of eczema, the dosage of the x-ray never having been tabulated. She presents as you see, besides the scarring and contracture of both hands and forearms, a large ulcerated area at the wrist on the radial side of the right arm. This has proved to be a basal cell carcinoma, which promptly recurred after wide excision with the electro-surgical unit. The malignancy had penetrated into the wrist which necessitated amputation of the arm at the upper third. You will see on the left forearm on the flexor surface an ulcerated area about the size of a half dollar which proved on biopsy to be a squamous cell carcinoma, which did not recur following wide excision.

The next slide shows a tubed pedicle graft from the abdomen covering the flexor surface of the forearm and also the dorsum of the hand which presented keratosis and revealed on biopsy to be active epithelioma. She has at the present time a fairly functioning hand. You will agree, I am sure, what tragic result has followed the use of x-ray therapy either from carelessness, ignorance or poor judgment or lack of keeping tabulated records of dosage. Dr. Hatchette is to be complimented upon his emphatic criticism.

Dr. H. G. F. Edwards (Shreveport): There is no question but what Dr. Hatchette's paper presents a lot of food for thought. Unfortunately, in my honest opinion, it does not strike at the true fundamental wrong which he has tried to bring forth. I have been practicing radiology almost twenty years in the State and have known every x-ray salesman in this State and many other states, and I can truthfully say that I have found them all to be first class gentlemen, and I know Dr. Hatchette knows all of them, and they are very splendid sales-

men. I think they should be complimented for their salesmanship rather than censured for it. Why should you censure x-ray salesmen any more than automobile salesmen because highway accidents are increasing every day. The truth of the matter is that the whole trouble is in a disorganized medical profession. It is the medical profession that must have a house-cleaning of its own first. As for myself, I wish to encourage the progress of medicine. I see physicians here who have purchased x-ray outfits who are not radiologists; they are specialists in their particular branch, and I am sure just as efficient in their particular branch as I am in radiology. The Board of Radiology, and other boards throughout this country are trying to correct the trouble. The trouble is that the medical student is not taught the fundamentals of radiology which he should be and which he is being taught in many of the Eastern schools, but not in the Southern schools. In the Eastern schools they are taught osteology and along with it, the normal roentgenologic findings, and when they are taught the gastrointestinal tract, they are taught the normal gastrointestinal findings, and they know a patient does not have gastroenteroptosis when he is an asthenic individual.

Dr. Hatchette brought out another point about the individual who buys an x-ray machine and builds up a lucrative practice without training. You must not blame the x-ray salesman for selling x-ray machines; you must put the blame where it belongs—on the medical society.

Burns do not always occur in the hands of the inexperienced man who uses the x-ray. I have had them occur on my hands. I have seen them come from more capable hands than my own. They sometimes occur when we are not able to reason why they occur. I am sure that Dr. Hatchette does not mean that the installation of small x-ray units throughout the country should be discouraged. I know of men throughout the Northern section of Louisiana, and the Southern section too, who are turning out better x-ray films than some of the so-called radiologists in this State. They are able, notwithstanding Dr. Hatchette's statement, to learn by the modern technic to make excellent films in just a few days' time. I do not say interpretation of the film is an easy affair. I have some of my friends who have put in x-ray machines and who see only an occasional skull and yet attempt to make an interpretation, but I am not attempting to tell them what they shall or shall not do. I know as well as anyone else knows that skill only comes from burning the midnight oil, having a large number of patients on which to draw conclusions. I am certainly not in favor of stemming the progress of the practice of medicine by saying that small units should not go in. I am in favor of it.

## THE ROENTGENOLOGIC DIAGNOSIS OF CERTAIN APPENDICULAR CONDITIONS

ANTONIO MAYORAL, M. D.†  
NEW ORLEANS

Whenever I speak or write about appendicitis, I feel apologetic. So much has been said about it that nothing new remains to be said; yet I believe that roentgenology has not been given its due credit when studying the appendix. To claim some credit for roentgenology is my excuse for writing.

Every reader will agree with me when I state that x-rays have no place in the diagnosis of acute appendicitis. Some undoubtedly will take with "a grain of salt" the x-ray diagnosis of chronic appendicitis, but I feel sure that most of you will agree with me when I affirm that there is a positive value to roentgenologic study of the gastrointestinal tract and its aid in diagnosing foreign bodies in the appendix, and in localizing misplaced adhered appendices, and adhesion between this and other organs causing symptoms always obscure and sometimes annoying. Roentgenograms are of value not only in diagnosing such conditions, but also in leading the surgeon to the site of the appendix, avoiding thereby unnecessary handling of the intestines and shortening the time of the operation, both important factors in the future well being of the patient.

Our ward surgeons are very thorough in their study of patients, and ask freely for my cooperation when examining the gastrointestinal tract. With very few exceptions the tract is studied in its entirety and when any suspicion is aroused, the colon is restudied by a barium enema. In the past five years, while doing these routine examinations, a sufficient number of guilty appendices have been found to justify this paper. To this small but important group my remarks will be confined.

†From the Department of Radiology, U. S. Marine Hospital and the Tulane University of Louisiana.

### HISTORY

Some of these patients give a history suggestive of previous acute attacks. Most of them do not give this history; the symptoms have appeared gradually, they are vague but annoying. As a rule there is no tenderness over McBurney's point; however tenderness somewhere else, usually over the misplaced appendix, can be elicited. Adhesion of the terminal ileum may cause partial intermittent obstruction with a mass in this region that may lead to the erroneous diagnosis of terminal ileitis or the appendix may be adhered to the gallbladder or under the surface of the liver, suggesting gallbladder pathology, or duodenal ulcer.

### AGE AND SEX

All of our patients have been male adults, this of course being due to the fact that male patients constitute the bulk of our admissions.

### DIAGNOSIS

The clinician can suspect the condition but the diagnosis is entirely roentgenologic. These appendices can be found by either barium enemas or gastrointestinal studies. In cases of foreign bodies (fig. 1), the



Figure 1

diagnosis can be made on a plain film. One point in technic I feel should be emphasized: The diagnosis depends entirely on one's ability to fill the appendix with the opaque media, this sometimes can be done very readily, but at times the use of a thin meal or enema will be necessary to accomplish this purpose. Figures 2A and 2B

illustrate two cases, the first found while doing routine gastrointestinal examination, the second during a barium enema; both presented vague symptoms, relieved by appendectomy. Figures 3A and 3B are films

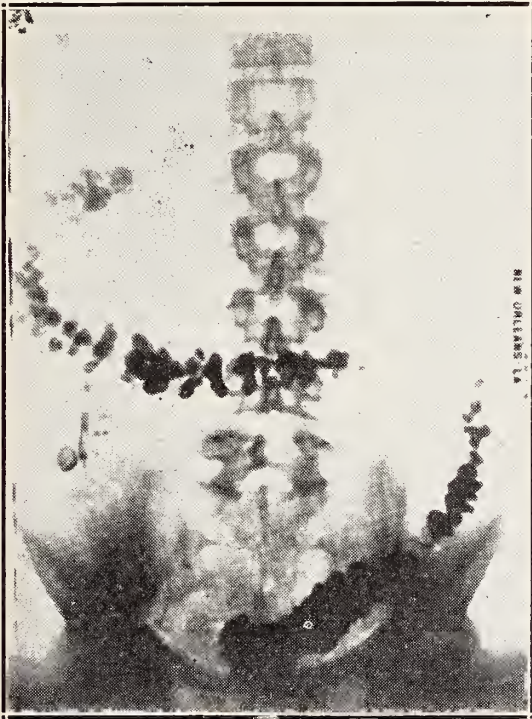


Figure 2A



Figure 2B



Figure 3A



Figure 3B

taken of another patient. Here the appendix is under the liver and during operation was found very adherent to it. Figure

3B shows terminal loops in the intestines adherent to the cecum in the neighborhood of the appendix, and it is my belief that these loops caused most of the patient's symptoms. This fact should be kept in mind by the surgeon, as simple amputation of the appendix will not relieve all of the patient's trouble; the adherent loop should be freed. Figure 4 reveals an appendix



Figure 4

adhered close to the vertebral column, beaded and retentive. This patient had vague symptoms suggestive of duodenal ulcer.

#### SUMMARY

The cases presented are only a few selected at random from this group of patients that in my opinion are demonstrative of the usefulness of the x-ray in diagnosing and localizing chronically inflamed and adherent appendices.

### THE DANGER OF ECBOLICS

WITH REPORT OF A CASE OF CINCHONISM

HENRY J. DAUTERIVE, M. D.

AND

ORIEN E. DALTON, M. D.

NEW IBERIA, LA.

In the past few years the medical profession has made great strides in educating the public to the dangers attendant to crim-

inal midwifery. Women have come to realize more completely the threat of future health, fertility, and even life, of mechanically induced criminal abortions. This realization has not been attained without its drawbacks, however, for it has turned the attention of the undesirably pregnant woman into other channels, which in our experience has not always been a lesser evil. It is to stress this point that we have written this paper and incorporated a case report of one especially severe case.

The pregnant woman who wishes to terminate her gestation will first consider methods of the greatest secrecy, procedures which she can undertake alone. Failing in this, some friend is usually consulted for advice. In either alternative, the answer will usually be some medicament. And so the course to be followed is usually decided upon, stress being placed on the fact that large amounts of the drug are necessary.

No drug has yet been uncovered that can be used with impunity to induce abortion. The drug selected by the unsuspecting victim is usually one of the ecbolics, or emmenagogues in ecbolic dosage. She has heard of this or that friend in whom labor had been induced by using "castor oil and quinine", so she reasons that if this suffices so late in the course of a pregnancy, it should much more readily suffice early.

A few of the mainly misused so-called "ecbolics" are: Ergot, quinine, pennyroyal, oil of rue, strong purgatives, cotton root bark, berberis, and pilocarpine. In addition to these, there are certain emmenagogues, sometimes quite efficacious when selected to proper case and dosage, which have been abused by lay malpractices. These are, in the main: Asafetida, tansy, and apiol, plus ergot and quinine, also listed as ecbolics.

Of the foregoing lists, the one the public is most acquainted with is quinine. It can easily be obtained by simply asking for it over the drug counter, as did the patient whose history is given below.

#### CASE REPORT

Mrs. W. L. S., a white female, 24 years old, was seen by one of us (H. J. D.) one and a half years

ago, at which time she was delivered of a normal male child. Postpartally she developed a badly eroded cervix which led us to advise her to have electrocoagulation. All suggestions of surgical therapy were declined. The symptoms dependent upon a pelvic cellulitis and bilateral salpingitis were controlled fairly effectively by Elliott treatments. A foul cervical discharge containing coccal forms and cellular detritus, but no specific organisms, persisted.

Having a morbid dread of another pregnancy, when four weeks past her regular menses, she sought the counsel of a friend who advised her to take quinine and castor oil. Over a period of eight hours she took fourteen ten grain capsules of quinine sulphate and two ounces of castor oil. Her intention had been to take 160 grains of quinine, but, at the end of her tether, she gave up and called us in. When seen (O. E. D.) she was found tossing about the bed, the facial musculature spasmodic. The pupils were dilated completely and fixed, no response being elicited to light. She could hear only when spoken to in a near scream, and complained of great dizziness and tinnitus. Urgency being obvious, we lavaged the stomach with warm water, first withdrawing about an ounce of greenish solution of gastric content and the ecbolic. One ounce of warm solution of magnesium sulphate was left in the stomach. A warm soap-suds enema was given. Temperature was 97.2° F., blood pressure was 148/106, the heart rate 116 per minute and respiration 19 per minute. Despite the blood pressure and heart rate, we administered 10 minims of a 1:1000 solution epinephrine. Sodium bromide, in 10 grain doses for three hourly doses and every six hours thereafter, was prescribed.

Seen six hours afterward she was somewhat appeased, less confused mentally, could hear better, and was partially relieved of the tinnitus. She had begun to have a slight amount of vaginal bleeding, but the most careful gross examination failed to reveal evidence of an ecloma. At six hours, she was having a great deal of generalized abdominal pain which we ascribed to the incurred medicament gastroenteritis.

At sixteen hours, hearing was normal, the tinnitus had ceased entirely, and vision had returned to the extent that forms could be outlined. At 30 hours, colors were distinguished and features discernible, but hazy. Seven days after the onset, the pupils were down to 4 mm., reacted readily to light, sluggishly to distance, and the patient could with some difficulty read newspaper print. The retinae were inspected at the initial visit, after six hours, and daily thereafter. Initially there was a general retinal congestion which persisted at six hours, but retinal restitution appeared grossly normal from the first 24 hours onward.

This patient returned to us five weeks after the acute episode. She had up to that time been

amenorrhic, and she still had her previous morbid dread of pregnancy, from which psychotherapy failed to separate her.

Demanding definite evidence as to whether she was pregnant or not, when she could only have been two-and-one-half months so, we examined her and found the breasts secreting slightly (her youngest child then fourteen months old), the uterus enlarged to two fingers above the symphysis, the cervix eroded and greatly enlarged. In addition there was a bilateral subacute salpingitis and a right tubo-ovarian mass about 3 by 5 cm. Friedman test reported negative. Three weeks later, she began a ten day dysmenorrhea which was controlled symptomatically.

This case completely exemplifies the symptomatology of a case of "cinchonism", with the spasms of facial musculature, general mental confusion, blindness, deafness, tinnitus, hypopyrexia and muscular weakness.

We know quinine to be one of the common drugs producing reactions on an anaphylactoid basis, acting as a general protoplasmic poison with a toxic affinity for all types of cells. In spite of this, however, we are quite certain that the manifestations observed in this case were founded on an intolerance basis and not that of an allergy. Quinine allergy would have expressed itself cutaneously or in some hemic manner, as perhaps thrombocytopenic purpura. This latter was definitely absent on blood smears made during the acute episode and three weeks afterwards. As an afterthought, we wondered if this patient might not have developed an idiosyncrasy to the drug as a result of the acute episode. Accordingly, a 1:1000 solution of quinine was introduced onto an area of scarified skin and observed for one hour, at six hours, 12 and 24 hours. The result was negative, locally and systemically.

The fatal dose of quinine is usually estimated at about 120 grains. The dose had been exceeded in this case. What then could have been the factor influencing the ultimate favorable outcome? It is our opinion that one of the drug's own side actions defeated a fatal outcome. This it did by the gastroenteritis it incurred, thus considerably decreasing the absorbability through the small intestine. The castor oil

too may have had a similar beneficence, as also the magnesium sulphate we left in the stomach after lavage. Ordinarily quinine is a drug with a fairly low absorption index and this is further decreased by an enteritis.

The accepted treatment of cinchonism is a frugal symptomatic regimen, in the main comprised of doses of sodium bromide and hypodermic epinephrine. The bromide is used for the sedation it imparts, and in no other way can be said to deter the cinchonic symptoms; epinephrine has been applied to most cases with a two-fold aim: as a circulatory stimulus and blood pressure elevator, and in its usual role to prevent the shock of an anaphylactoid crisis.

Features of this case that were atypical were the elevation of blood pressure and increase in heart rate. Quinine purportedly will, in large doses, cause an appreciable fall in pressure by decrease in responsiveness of the vagi, and by direct depression of the blood vessels. Fearing a secondary fall in pressure, we administered the epinephrine. The fall in pressure six hours later was, we felt, partially abetted by the drug and justified its use. Temperature subnormalcy was in keeping with the increased heat loss by hydremia, wherein lies the drug's antipyretic efficiency.

The retinal hyperemia we noted on ophthalmoscopic examination is contradictory to the usual finding, a retinal anemia. This retinal anemia is usually attributed to spasm of the retinal vessels induced by central action of the drug. Optic atrophy, a reported sequela in some cases of cinchonism, fortunately did not develop. The patient did, however, suffer a non-progressive low myopia.

The accepted explanation for the ear changes has been that the drug exerts a specific toxicity on the cells of the spiral ganglia. This is true, plus the internal ear congestion, which it may be said, some authors attribute to agonal and postmortem change.

It has been suggested that where large doses of quinine are necessitated, hydrobromic acid in full doses be given in conjunction to prevent cinchonic phenomena.

## SUMMARY

Here we have a patient who, in an attempt to induce abortion by use of one of the commoner ecboics, ingested more than a fatal dose of the drug, jeopardized life and senses, and as fate would have it, was in reality not pregnant. As we pointed out in our introduction, cases of this sort are coming before us in increasing numbers. We cannot too sternly admonish those patients who do so, or those whose counsel has so endangered them, not to treat themselves.

—o—

### HYSTEROSALPINGOGRAPHY A VALUABLE ADJUNCT IN GYNECOLOGIC DIAGNOSIS\*

THOMAS BENTON SELLERS, M. D.  
JOHN T. SANDERS, M. D.  
AND  
JOHN J. YOUNG, M. D.

NEW ORLEANS

The roentgen ray has played a most important role in the diagnostic realms of most specialties. The gynecologists of America, as a whole, have been reticent in utilizing this most valuable measure, although for many years it has been used by a few gynecologists in determining the cause of sterility. It is my desire, in the short time allotted me, to present the practical application of hysterosalpingography, hoping that many of you may adopt this most valuable procedure as an integral part of your armamentarium, holding sacred the abdominal cavity and performing laparotomies only when certain definite indications exist.

## INDICATIONS FOR HYSTEROSALPINGOGRAPHY

Any new procedure that requires special training will be condemned by many without giving it a trial and poorly handled by some, but intelligently employed by others. Hysterosalpingography has proved itself of value in the following conditions:

1. It reveals the size, shape and position of the uterus and any abnormalities that may be present. This information is par-

\*Read before the Orleans Parish Medical Society, June 12, 1939.



ticularly valuable in obese and hypersensitive individuals in whom satisfactory bimanual examination is impossible.

2. Hysterosalpingogram not infrequently reveals occlusion of one or both tubes, resulting from previous pelvic pathology, in spite of a negative history and negative gynecologic findings.

3. In the study and therapy of sterility, hysterosalpingography enables us to visualize the fallopian tubes and to determine whether or not they are partially or totally occluded as well as the exact site of occlusion.

4. It aids in the diagnosis of uterine tumors and occasionally in making a differential diagnosis between ovarian and uterine tumor masses.

5. Often it is an aid in making a differential diagnosis between tumors of the uterus and those of the cecum or sigmoid colon.

6. In the study and management of dysmenorrhea, the graphic demonstration of the contour of the uterine cavity as portrayed on the x-ray plate is a distinct advantage. I believe with Mathieu and others that the chief reason for failure in the treatment of dysmenorrhea is that this problem is not usually attacked in true scientific medical style. Notwithstanding the fact that cervical stenosis as a cause of dysmenorrhea is a controversial point, it is a definite cause, and the roentgen ray is of inestimable value in the study of these cases.

#### OBJECTIONS TO HYSTEROSALPINGOGRAPHY

At this time, I will attempt to answer some of the more common objections to this procedure.

1. It is fraught with certain dangers. We believe that these are negligible with the more recent developments in technic and with the newer contrast media now being used.

2. Many of the pictures are not conclusive but they are an indispensable adjunct in making a differential diagnosis when the findings are evaluated in conjunction with the history, physical and clinico-pathologic findings.

3. It is expensive. This, no one can deny, but it is the most scientific approach to many obscure gynecologic problems and, on the average, is more economical than the empirical administration of hormonal therapy which is not only expensive but also time-consuming and possibly harmful.

The dangers and objections to hysterosalpingography were largely due to the contrast medium itself, namely lipiodol. Since the development of non-irritating and absorbable media, such as viscous skiodan, most of the danger and objections have been eradicated. A comparison of lipiodol and viscous skiodan appears elsewhere in this paper.

#### CONTRAINDICATIONS

1. Hysterosalpingography is contraindicated in patients suspected or known to have pelvic inflammatory disease or advanced cardiac lesions.

2. In pregnancy, although it has been reported (Jarcho) that a frank attempt at therapeutic abortion by the injection of contrast medium ended in failure.

3. During the menstrual period or during any vaginal bleeding because of the danger of forcing endometrial tissue into the tubes and pelvic cavity.

4. Questionable carcinoma of the uterus, as there is danger of disseminating the malignant cells.

#### SELECTION OF OPAQUE MEDIA

Since 1921, iodized oil has been used for injection into the uterus and fallopian tubes for the purpose of x-ray visualization of the structures. I used it routinely until recently when it was discarded in favor of viscous skiodan, as suggested by Titus. Viscous skiodan (mono-iodomethane sulphate of sodium) in a 40 per cent aqueous solution combined with a 20 per cent solution of acacia is a contrast medium offering none of the disadvantages of lipiodol and most of the advantages. (This solution is dispensed by the Winthrop Company ready for use.) This aqueous mixture of viscous skiodan is a non-irritating, non-toxic, absorbable substance that gives x-ray pictures, perhaps, more clearly defined

than those obtained by the use of lipiodol. So far as we know, viscous skioldan leaves no residue in the tubes to produce total occlusion in partially patent tubes as lipiodol is reported to do (Rubin). The contrast medium is completely absorbed, and here lies a possible objection to the universal use of viscous skioldan. With lipiodol, a 24 hour x-ray plate may be taken to determine its actual presence in the peritoneal cavity, thus demonstrating beyond doubt tubal patency; on the other hand, the viscous skioldan is absorbed and excreted in the urine within a few hours, making subsequent plates valueless. Table 1 will show the relative merits of these two popular contrast media.

TABLE 1

*Viscous Skioldan*

1. X-ray opaque but lacking the "body" of lipiodol.
2. Sharper and clearer pictures.
3. New product; therefore, has not stood the test of time.
4. Non-toxic, non-irritating.
5. Completely absorbed, thereby obviating danger of totally occluding partially patent tubes.
6. Twenty-four hour plate valueless here because of absorption and excretion in the urine.
7. No danger of oil embolus.
8. Absorbed, therefore will not obscure subsequent x-ray study of abdomen and pelvis.

*Lipiodol*

1. X-ray opaque and satisfactorily viscid and adhesive.
2. Less clearly defined pictures.
3. Has been used for many years.
4. May cause chemical peritonitis, salpingitis, or parametritis.
5. Non-absorbable and occasionally produces total occlusion of partially closed tubes.
6. Conclusive proof and graphic demonstration of tubal patency by presence of oil in peritoneal cavity on the 24 hour plate.
7. Danger of oil embolus.
8. Because of non-absorption and the tendency to be carried toward the kidneys and diaphragm (Rubin) may lead to erroneous radiographic diagnosis of kidney stones.

## TYPE OF CANNULA

We have found that the Hyams' cannula with the flexible point is superior and has overcome many serious objections to the rigid metal cannula. First, the flexible tip is less likely to obscure the picture of the cervical canal. Second, there is no danger in perforating the uterus. Third, it will more readily adapt itself to the irregular cervical canal.

## PREPARATION OF THE PATIENT

Preparation of the patient is important as strict asepsis must be practiced here as

well as in any surgical procedure. A cleansing douche is given the night before and repeated in the morning before the examination. Enemata are also given the night before and in the morning. Purgatives are seldom deemed necessary.

We have found that a sedative, such as one of the barbiturates, is usually desirable to allay apprehension. Atropine gr. 1/100 by mouth, if given one hour before the test, has been found to be of value in relieving the spastic contraction of the tubes.

The patient is placed in the lithotomy position on the x-ray table equipped with a Bucky diaphragm. The hair about the external genitalia is clipped and the patient is then prepared as for any other vaginal operative procedure.

## TECHNIC

The instrument tray should contain:

Single-tooth volsellum; bivalve speculum; uterine probe; uterine dilators; two sponge holders; two 10 c.c. syringes with large caliber needles; Hyams' insufflation cannula and flexible tip; two Alyce clamps; two towel clamps; warm sterile saline; warm viscous skioldan.

A bivalve speculum is placed in the vagina and the anterior lip of the cervix is grasped with a single-tooth volsellum. A uterine sound is inserted into the cervical canal to determine its patency and its direction. Before attempting to inject the viscous skioldan, it is important to determine whether the acorn of the cannula will fit snugly enough against the cervix to prevent leakage as the contrast medium is introduced into the uterine cavity. This is accomplished by using either air or warm normal saline as a test solution before the contrast medium is used. In cases of unilateral or bilateral laceration of the cervix, a single-tooth volsellum or other clamp may be used to approximate the lacerated edges to facilitate snug fitting of the acorn and to prevent it from slipping too far toward the internal os, thereby obscuring the picture of the cervical canal.

Warm viscous skioldan is then injected, using about the same pressure on the piston of the syringe as would be used in the ad-

ministration of local anesthesia. From 1 to 2 c.c. of the solution is injected, depending upon the size of the uterine cavity, and the first x-ray plate is exposed. The cannula is held in position and a second injection is made, using 2 c.c. of the solution if the uterine cavity will permit. This is determined by the resistance produced by back pressure on the plunger of the syringe as well as the degree of discomfort experienced by the patient. A second x-ray picture is taken at this time. A third injection is now attempted if the uterine cavity is not already filled, and, at this time we attempt to fill the uterine cavity completely, again being governed by the reaction of the patient and by the back pressure. A third and final plate is taken. The uterine cavity varies greatly in size. The capacity of a normal uterus with its tubes varies from 4 to 6 c.c.; a senile uterus varies from 1 to 3 c.c.; and the atonic and the fibroid uterus may hold anywhere from 10 to 20 c.c.

#### CASE REPORT NO. 1

Mrs. W. H. A., aged 56 years, weight 190 pounds, came in primarily for a gynecologic check-up. For the two years prior to her visit to us, she complained of a sensation of pressure in the rectum. She had not menstruated for six months. Several months before being examined at our office, she had been seen at a large clinic, and at that time a difference in opinion existed as to the possibility of a uterine tumor. She became symptomatically well after following a régime outlined by the doctors in the clinic mentioned, but the variance in opinion, of which she was aware, caused a doubt to remain in her mind as to the presence or absence of a tumor. This patient had had three pregnancies (two miscarriages and one living child).

Bimanual examination revealed relaxed perineal outlet, enlarged cervix and retroverted uterus, fixed and pulled to the left side. This examination was not entirely satisfactory because of the thickness of the abdominal wall.

Laboratory findings were as follows: Wassermann negative; blood picture and blood chemistry normal. B.M.R. minus 14 per cent. Electrocardiogram showed evidence of myocardial disease. Urinalysis normal except for a faint trace of albumin and an occasional granular cast.

Hysterosalpingogram showed both tubes patulous, uterus displaced to left.

#### CASE REPORT NO. 2

Mrs. C. R. D., aged 36, was first seen in 1937 for menorrhagia and after a dilatation and curet-

tage was treated with 50 mg. radium for six hours. Her menstruation began at the age of 14, always regular with no pain until 1925 when symptoms of menorrhagia were manifested. Since 1927, menstruation has been irregular but not profuse. Three pregnancies since 1927 terminated in miscarriages.

While living in South America in 1938, the patient missed her February eighth menstrual period. The following month (March 18), she began to bleed at night during sleep. One week later, a Friedman test was positive. On April 7, she bled again and, on April 19, had what she described as a profuse hemorrhage for which she received proluton. Active bleeding ceased but a continual discharge of dark, stringy material supervened. On April 30, a second Friedman test was reported positive. After clinical examination on May 19, she was told she was not pregnant. About two weeks later (May 31) she first noticed her breasts were swollen. She had no menstrual period in May and a very scant flow in June with no intermenstrual bleeding. The last menstrual flow started July 20, after which time she returned to the States and again came under our care. This July menstruation was scanty and irregular for four days through July 24.

Examination was as follows: External genitalia normal, cervix of normal consistency, slightly enlarged and with a slight blood-tinged discharge. Bimanual examination revealed the uterus in normal position, firm in consistency and moderately enlarged.

On July 25, hysterosalpingogram was taken and a provisional diagnosis of retained secundines was made. Dilatation and curettage on July 26 revealed retained secundines.

Laboratory findings: B. M. R. plus or minus 0. Repeated blood Wassermann examinations were negative. Remaining routine laboratory check-up revealed all normal findings.

#### CASE REPORT NO. 3

Mrs. H. L. S., aged 42, for the past several years, has complained of weakness, nervousness and depressed feeling, and pain in the left lower quadrant. She has been under the constant care of a gastroenterologist for numerous gastrointestinal complaints; has one child. For the past six months, she has had a profuse flow lasting four to five days each month, with clots, but no dysmenorrhea; complains of feeling well only about one week out of each month.

Examination revealed relaxed perineal outlet, eroded cervix, uterus larger than normal and pulled to the left side. Bimanual examination was unsatisfactory because of extreme nervousness and hypersensitivity of the patient. Hysterosalpingogram was made which showed the uterus pulled to the left side, left tube patulous and an irregular

uterine cavity suggestive of submucous or intramural tumors.

A hysterectomy performed later revealed multiple uterine fibroids in the form of small intramural tumors and a fairly large subserous fibroid.

Pathologic diagnosis: Subserous leiomyoma; fibrosis of the wall of the uterus, hyperplasia of the endometrium.

#### CASE REPORT NO. 4

Mrs. J. E. S., aged 30, came in with the chief complaint of marked dysmenorrhea with headaches and menorrhagia. This patient has two children. Severe headaches begin about one week before the menstrual flow and pain is present during the period in the tubo-ovarian region, more severe in the left iliac fossa. Each menstrual period lasts about 14 days and reappears every 28 days.

Examination revealed the uterus normal in position and size; the cervix was larger than normal. Hysterosalpingogram showed that both tubes were patulous, uterus pulled to the left and the uterine cavity about normal in size and shape. X-ray of the skull indicated that the pituitary body was normal. Basal metabolism rate was minus 6 per cent; Wassermann negative.

Patient improved under general upbuilding régime and anterior-pituitary extract by needle.

#### CASE REPORT NO. 5

Mrs. H. M., aged 32, weight 245 pounds, has one child, aged six years. Her menstrual history was normal up until one year ago at which time the flow lasted 18 days. Following this attack of menorrhagia, her periods became very irregular, with menstruation at four to six week intervals. A month prior to consulting us, she had a profuse hemorrhage lasting about five minutes. Following this hemorrhage, there was a constant bloody discharge.

Examination revealed cystocele, rectocele and lacerated cervix with endocervicitis. The uterus was apparently larger than normal although bimanual examination was not satisfactory because of the thickness of the abdominal wall. Hysterosalpingogram showed that both tubes were patulous and the uterus enlarged with a filling defect in the fundus. Laboratory findings: Wassermann negative, basal metabolic rate minus 5 per cent.

A hysterectomy was performed and the uterus found to be much enlarged. The diagnosis made by the pathologist was fibrosis of the wall of the uterus, hyperplasia of the endometrium and chronic inflammatory cervicitis.

#### SUMMARY

The indications for hysterosalpingography, the objections and contraindications are discussed, as is the technic in this procedure. A series of case reports are presented illustrating the value of this procedure.

#### DISCUSSION

Dr. P. J. Carter (New Orleans): This is a very valuable procedure that gives us assistance in difficult diagnoses in gynecology. Before going into this question I might say that each woman has to be individualized because the uteri are of different sizes and we have some cases that require a less amount of substance than others. In cases of sterility I usually use the Neal fallopian cannula. It has a double mouth and one mouth is closed off in giving skiodan injection to the patient. If no pathologic lesion is found by vaginal examination, air is injected using the blood pressure apparatus attached to one of the mouths and a syringe in the other, allowing air to go in, around the point of 100 to 140 mm. of mercury. In the average case with tubes open, the pressure will rise to 80 or 100 and drop to 60 or 40, showing one or both tubes open. That would be sufficient in cases of sterility. In cases where we find the tubes closed we use the Neal fallopian cannula and close off one of the mouths and inject the skiodan preparation into the uterine cavity; 40 per cent skiodan and 20 per cent acacia. With lipiodol there is liberated iodine. On account of the oil it may produce adhesions and require an operation. In the preparation skiodan, iodine is not liberated but kept in non-poisonous form and eliminated in the urine.

Dr. Sellers (In conclusion): I wish to emphasize one point Dr. Carter mentioned, that is, that hysterosalpingography should not be placed in a competitive field with the Rubin test as they have different indications and both have a very definite place in the armamentarium of the gynecologist. We find it necessary in many of our cases, such as sterility, to run both.

---

### ACUTE LYMPHOCYTIC CHORIOMENINGITIS WITH A REPORT OF TWELVE CASES FROM LOUISIANA\*

CARLO J. TRIPOLI, M. D.†

AND

DAVID E. FADER, M. D.†

NEW ORLEANS

Acute lymphocytic choriomeningitis is an apparently specific acute infectious and contagious disease which has been described under several different names. It was

\*Read before the Orleans Parish Medical Society, February 27, 1939.

†From the Department of Medicine of the School of Medicine of Louisiana State University, and the medical service of Charity Hospital of Louisiana at New Orleans.

first described as a separate clinical entity by Wallgren,<sup>1</sup> under the term "acute aseptic meningitis," in a review of reports of European epidemics of so-called encephalitis. Local epidemics of so-called "abortive poliomyelitis" reported in Europe in 1910 and 1913 are now believed to be similar to the cases described by Wallgren. In 1929 Viets and Watts<sup>2</sup> made a most important contribution to the study of meningitis in this country by reporting three cases of what they termed "aseptic (lymphocytic) meningitis," and later in that year Krabbe<sup>3</sup> described the same condition as "benign lymphocytic meningitis."

In 1934, during the St. Louis epidemic of encephalitis, Armstrong and Lillie<sup>4</sup> reported the isolation of a virus quite different from the usual strain with which they were working. This virus, when introduced into the macacus rhesus monkey, produced a disease similar to that previously described as "acute aseptic meningitis." Later these workers coined the term "acute lymphocytic choriomeningitis" on the basis of the characteristic pathologic lesion produced in mice and monkeys.

The disease has been reported in various parts of the United States,<sup>5, 6</sup> as well as in Europe, New Zealand, and many tropical countries. It has attracted considerable interest, for two reasons. In the first place, it is of rather frequent occurrence. In the second place, although it is a relatively benign infection, it is often mistaken for tuberculous meningitis or for some other serious meningo-encephalitic syndrome. In this communication we shall review briefly the important considerations of this disease, and analyze 12 cases, all of which were recognized and diagnosed at the Charity Hospital of Louisiana at New Orleans.

#### THE CAUSATIVE VIRUS

A considerable amount of laboratory and experimental work has been done on acute lymphocytic choriomeningitis. In addition to the virus isolated by Armstrong and Lillie, similar viruses have been isolated by Traub,<sup>7</sup> Rivers and Scott,<sup>8</sup> Lépine and Sautter,<sup>9</sup> and Findlay, Alcock and Stern.<sup>10</sup>

Serologic experimental studies, including cross-immunization and cross-neutralization tests, indicate that all these viruses are probably identical.

The virus is readily transmissible to monkeys, guinea pigs, white mice and white rats, via cerebral, spinal, venous, peritoneal, nasal, tracheal, vaginal, and urethral routes. Rabbits, however, appear refractory to the disease. All the rabbits which we used in our experiment remained well after we had injected spinal fluid from two of our cases intracerebrally, intrathecally, and intravenously.

Armstrong, Wooley and Onstatt<sup>11</sup> demonstrated the presence of the virus in the blood, urine, and spinal fluid, as well as in practically every organ in the body, and Lillie<sup>12</sup> described histopathologic changes in the various organs in which it could be identified. The distribution of this virus, as compared with the distribution of other viruses of a neurotropic nature, is unique.

The disease is readily transmitted by direct inoculation,<sup>4, 13</sup> and Toomey<sup>14</sup> has reported 70 human cases in which he was able to demonstrate a relatively high degree of contagiousness. The average incubation period in monkeys is six to eight days, regardless of whether transfer is by the intracerebral or the intratracheal route. Definite observations are not available for the human.

#### PATHOLOGIC LESIONS

Four to 10 days after intracerebral inoculation in monkeys, when the fever is at its height, the characteristic pathologic lesions appear to be complete. The chief lesion consists of a remarkable lymphocytic infiltration throughout the choroid plexus and leptomeninges. Only an occasional polymorphonuclear leukocyte or endothelial cell can be demonstrated. Concomitant congestion of the vessels, and edema of the pia and arachnoid, are present. In experimental animals the brain and spinal cord substance are slightly affected, if at all. Viets and Warren<sup>15</sup> report the postmortem findings in one case of this sort, in which perivascular cellular infiltration, edema and gliosis were present in the cerebrum,

medulla, and spinal cord, and inclusion bodies and pigment granules could be demonstrated in the large ganglion cells. Unfortunately the diagnosis was not confirmed by animal inoculation, immunization, or neutralization tests. In experimental animals the type and distribution of the lesions are readily distinguishable from those produced by epidemic encephalitis and tuberculous meningitis.

young adult life (one to 23 years). Apparently occupation and residence played no part in the epidemiology of these cases. The seasonal distribution was striking, however, all the cases occurring in the period from May to December, with the highest incidence in August and September. Acute poliomyelitis, with which this disease is likely to be confused, shows a similar seasonal occurrence.

TABLE I  
RESUME OF 12 CASES OF ACUTE LYMPHOCYTIC CHORIO-MENINGITIS

AGE in years.	1	4	5	6	14	14	15	16	18	20	21	23	Range - 1 to 23 yrs
RACE	■	W	W	■	W	■	W	■	W	■	■	W	■ 6 W-6
SEX	♂	♀	♀	♀	♂	♂	♂	♂	♂	♂	♂	♀	♂ 8 ♀ 4
OCCUPATION	Pre-school	Pre-school	Pre-school	Pre-school	Laborer	Laborer	School boy	Laborer	Trapper	Laborer	Laborer	Housewife	Occupation - Varied
LOCALITY	New Orleans, La	New Orleans, La	Schriever, La	Algiers, La	Pearl River, La	Thibodaux, La	New Orleans, La	Napoleonville, La	Berwick, La	Arbite, La	New Orleans, La	New Orleans, La	Locality - Varied
SEASON	September	June	May	August	September	September	December	August	October	July	August	July	Range - May to December - most prevalent in August to September

**SIGNS & SYMPTOMS**

FEVER	RANGE - 100° - 103°												
HEADACHE	ALL CASES												
DROWSINESS	ALL CASES												
NAUSEA - VOMITING	6 CASES												
STIFF NECK	11 CASES												
DURATION (days)	11	6	6	9	7	9	14	9	6	14	5	16	
COMPLICATIONS	NONE												

THE CHARITY HOSPITAL CASES

Tables 1 and 2 present a résumé of the pertinent facts in the 12 cases of acute lymphocytic choriomeningitis studied at the New Orleans Charity Hospital. These cases are similar in all respects to the cases reported by other writers on this subject, and it may be assumed that what is said of them specifically is true of the disease in general.

It will be noted that the racial distribution was equal in these 12 cases, that the male incidence was twice the female, and that the age incidence was from infancy to

The clinical picture in these cases resembled the picture in experimental animals. After a few days of mild prodromal symptoms, there was a rather sudden onset, the outstanding symptoms in the order of appearance being fever, headache, drowsiness, rigidity of the neck, nausea and vomiting. The fever ranged from 100° to 103° F. This is the usual picture in all reported cases. In more severe cases there may be backache, abdominal pain, mental confusion, and marked drowsiness, with occasional convulsions, opisthotonos, and loss of consciousness. A positive Kernig sign is usually present.

The appearance of these patients is usually good, in spite of the relatively serious nature of the pathologic lesions. The absence of peripheral or cranial nerve involvement is also remarkable. Such eye signs as nystagmus, squints, photophobia, and papilledema are only occasionally present, and did not appear in any of our cases.

TABLE II.

LABORATORY FINDINGS IN 12 CASES OF ACUTE LYMPHOCYTIC CHORIO-MENINGITIS

SPINAL FLUID:

Clarity: Water clear.

Pressure: Slight increase.

Cell Count: 40, 50, 80, 100, 100, 150, 200, 360, 380, 810, 980, 1600 -

Lymphocytes: 10 cases-100%, 1 case-90%, 1 case-50%.

Globulin: 0, +, +, +, +, +, +, +, +, +, +, +, +, +, +, +

Chemistry: 11 cases, sugar and chlorides normal. 1 case, sugar 22 mg/100 cc.

Smear and culture: All negative.

Wassermann: All negative.

X-RAY:

Sinuses, mastoid and chest - all negative.

LABORATORY OBSERVATIONS

The consistency of the spinal fluid findings was impressive in all these cases. The pressure was normal or very slightly increased. The cell count ranged from 250

to 500 per cu. mm., as is usual, although a range from 50 to 3,000 cells per cu. mm. has been reported. The pleocytosis was predominantly lymphocytic, though some cases showed as many as 10 to 30 per cent

plus 4. These changes tended to persist for a few days, even after the temperature had returned to normal by rapid lysis (figs. 1 and 2). No clot, pellicle, or bacteria could be demonstrated. The Kahn and Wassermann tests were negative, and the gum mastic curve was in the meningitic zone.

The blood picture showed a mild leukocytosis, ranging from 6,000 to 12,000 per cu. mm., with 60 to 75 per cent polymorphonuclear leukocytes. In four of the cases reported by Toomey<sup>14</sup> the leukocyte count of the blood varied from 3,200 to 5,000 per cu. mm., with the lymphocytes ranging from 60 to 70 per cent.

The blood serum in this disease contains immune bodies in abundance after the second week. It is to be noted that they cannot be demonstrated in experimental animals before this time. Neutralization tests and animal inoculations are easily performed, and must be done in every case in order to establish proof of the diagnosis.

COURSE

The rapid alleviation of symptoms and signs, following a single lumbar puncture with drainage of the spinal fluid, was notable in every one of these 12 cases. Usually within 24 to 36 hours the clinical picture was transformed from one of critical illness to one of well being. The change, indeed, was often so abrupt as to suggest the crisis of pneumococcal lobar pneumonia.

In most of the cases observed at Charity Hospital, as in the reported cases, the disease was benign and the course relatively short. The duration ranged from five to sixteen days, with most cases lasting from six to ten days. An occasional duration of three weeks is reported in the literature. There were no fatalities, and no complications in any case. No residual pathologic lesions have been demonstrated thus far during the past five years.

DIAGNOSIS

A provisional diagnosis of acute lymphocytic choriomeningitis is justified in any case which fulfills the criteria laid down by Wallgren in 1925, including: (1) An acute onset of meningeal symptoms; (2)

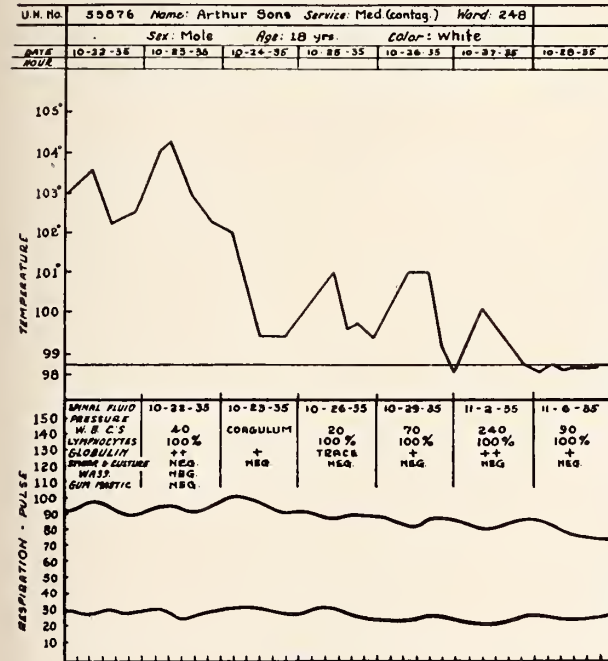


Figure 1

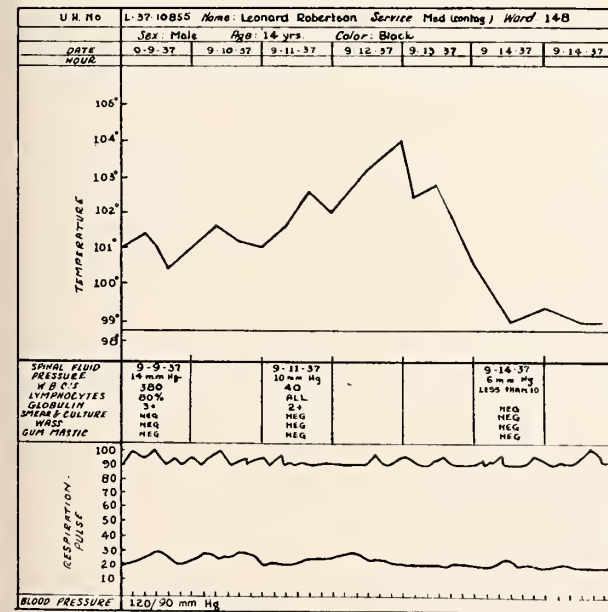


Figure 2

polymorphonuclear leukocytes in the early stages of the disease. In all our cases the sugar and chloride content of the spinal fluid was within normal range. Protein was usually low, from plus 1 to plus 2, but in three cases was higher, from plus 3 to

changes in the cerebrospinal fluid characteristic of meningeal irritation, with a slight or moderate increase in the number of cells, especially of lymphocytes; (3) sterility of the fluid, both on direct examination and in appropriate culture media; (4) a short, mild duration of illness, without complications; (5) the absence of any condition which might lead to meningeal irritation, such as otitis media, or acute or chronic infection; (6) the absence in the community of any disease which characteristically involves the central nervous system.

The most common conditions with similar spinal fluid findings with which acute lymphocytic choriomeningitis is likely to be confused are tuberculous meningitis, "abortive" or "meningitic" poliomyelitis, epidemic and postvaccinal encephalitis; "meningovascular" syphilis, and lead encephalopathy.

#### DIFFERENTIAL DIAGNOSIS

Tuberculous meningitis is differentiated by the absence of a pellicle or clot in the spinal fluid, plus normal chloride and sugar values, and the absence of bacilli. A notable distinction is that no case of definitely proved tuberculous meningitis has ever been reported with complete recovery, whereas practically every patient with acute lymphocytic choriomeningitis does recover, and without any residuals.

Two of our cases were first diagnosed as tuberculous meningitis and a review of the records of the New Orleans private hospitals reveals a few cases so diagnosed in which recovery ensued. Possibly these were instances of acute lymphocytic choriomeningitis.

Encephalitis is usually differentiated by the absence of any neurologic findings, though in severe cases of acute lymphocytic choriomeningitis cerebral findings may be prominent. Poliomyelitis is differentiated by the absence of muscular paralysis and of spinal fluid changes characteristic of the disease. Syphilis and lead encephalopathy may be differentiated by the history, the negative Wassermann or Kahn reaction, and the stippling of the red blood cells. In

the last analysis, demonstration of the virus of acute lymphocytic choriomeningitis in the spinal fluid, or of antibodies in the blood serum, is the only positive diagnostic proof.

#### TREATMENT

Since the blood serum contains antibodies in abundance after the second week of the disease, the value of the prophylactic use of convalescent serum seems obvious. The relatively short course of the disease, plus the fact that no proved deaths have been reported from it, might seem to suggest that treatment is not important. As a rule, one or two spinal punctures, with drainage of the spinal fluid, are all that is necessary both for diagnosis and for the relief of headache. The value of convalescent serum in severe cases, however, can hardly be questioned, and since it may lessen the duration of the disease in the average case, its use is worthy of consideration if it happens to be available.

#### SUMMARY

1. This paper is based on an analysis of 12 cases of acute lymphocytic choriomeningitis treated at Charity Hospital of Louisiana at New Orleans during the last five years. Wallgren's criteria for clinical diagnosis have been fulfilled in all.
2. The occurrence of the disease in this locality is important from both a diagnostic and an epidemiologic point of view.
3. The different viruses described as the etiologic agent are probably identical.
4. The ease of transmission of the virus from the human to all common laboratory animals except the rabbit is notable.
5. The pathologic lesion which gives the disease its name, a lymphocytic infiltration of the meninges and choroid plexus, is characteristic.
6. The outstanding clinical symptoms are headache, fever, rigidity of the neck, and nausea and vomiting.
7. The spinal fluid findings are remarkably consistent. The cell count is usually 250 to 500 cells, 90 per cent or more of which are lymphocytes. The chemistry is normal except for an increase in the protein.



8. The conditions to be considered in differential diagnosis include tuberculous meningitis, so-called "abortive" or "meningitic" poliomyelitis, so-called "meningovascular" syphilis, epidemic and postvaccinal encephalitis, and lead encephalopathy.

Our thanks are due to Dr. George S. Bel, Dr. John H. Musser, and Dr. J. G. Stull for the privilege of reporting cases appearing on their services, and to Dr. G. F. Fasting for performing the animal inoculation experiments.

#### REFERENCES

1. Wallgren, A.: Acute septic meningitis; new infectious disease of central nervous system, *Acta paediat.*, 4:158, 1925.
2. Viets, H. R., and Watts, J. W.: Three cases of aseptic (lymphocytic) meningitis, *New England J. Med.*, 200:633, 1929.
3. Krabbe, K. H.: Benigne lymfocytære meningiter, *Bibliot. f. Laeger*, 121:511, 1929.
4. Armstrong, C., and Lillie, R. D.: Experimental lymphocytic choriomeningitis of monkeys and mice produced by a virus encountered in studies of the 1933 St. Louis encephalitis epidemic, *U. S. Public Health Reports*, 49:1019, 1934.
5. Viets, H. R., and Watts, J. W.: Aseptic (lymphocytic) meningitis, *J. A. M. A.*, 93:1553, 1929.
6. Viets, H. R., and Watts, J. W.: Acute aseptic meningitis, *J. Nervous & Mental Dis.*, 80:253, 1934.
7. Traub, E.: A filtrable virus recovered from white mice, *Science*, 81:298, 1935.
8. Rivers, T. M., and Scott, T. F. M.: Meningitis in man caused by a filtrable virus, *Science*, 81:439, 1935.
9. Lépine, P., and Sautter, V.: Existence en France du virus murin de la chorioméningite lymphocytaire, *Compt. rend. acad. d. sc.*, 202:1624, 1936.
10. Findlay, G. M., Alcock, N. S., and Stern, R. O.: The virus etiology of one form of lymphocytic meningitis, *Lancet*, 1:650, 1936.
11. Armstrong, C., Wooley, J. G., and Onstatt, R. E.: Distribution of lymphocytic choriomeningitis virus in organs of experimentally inoculated monkeys, *U. S. Public Health Reports*, 51:298, 1936.
12. Lillie, R. D.: Pathologic histology of lymphocytic choriomeningitis in monkeys, *U. S. Public Health Reports*, 51:303, 1936.
13. Rivers, T. M., and Scott, T. F. M.: Five cases of lymphocytic choriomeningitis in man, *Am. Pediat. Soc.*, 48:41, 1936.
14. Toomey, J. W.: Acute lymphocytic meningitis, *J. Pediat.*, 8:148, 1936.
15. Viets, H. R., and Warren, S.: Acute lymphocytic meningitis, *J. A. M. A.*, 108:357, 1937.

#### DISCUSSION

Dr. John H. Musser (New Orleans): This very admirable presentation requires very little discussion. The doctors, in their paper, have covered very thoroughly all that is known about this disease. My interest in the subject arises from the fact that I have had the opportunity of seeing, in Ward 48 at the Charity Hospital, several of these cases. I must confess that I have never made the diagnosis of lymphocytic choriomeningitis. Also, the patients, as I have seen them first, have presented the picture of a meningitis of course undetermined and because the meningitis is usually caused by the meningococcus, I have thought that such was the case, until however, the

spinal fluid report was noted and then I would shift my diagnosis and think the patient had tuberculous meningitis; then the patient proceeded to get well immediately and, of course, it was found that the diagnosis was not tuberculous meningitis. Patients with tuberculous meningitis, who have recovered, are so rare that I always want to doubt the diagnosis originally made.

There are one or two features of this condition which I think are of some interest. In the first place, this is a virus disease. It is not a new disease, relatively speaking. In fact there is no such thing as a new disease. This is not a disease recognized only in the last three, four, five or six years. The recognition of the cause, however, is something which has developed only in the last decade. This disease expresses itself in a severe, protracted form which may be fatal. In most instances, however, the condition is relatively mild. I wonder very much if some of the patients that we may be called upon to see, who complain of headache and are drowsy and who may possibly have a slight amount of nausea and fever, may not have this condition. I wonder how often some of our patients with this condition are accused of having influenza. It is quite possible that the number of cases that Dr. Tripoli and Dr. Fader reported might be materially increased were a spinal fluid examination made on all patients who complained of headaches, fever and slight rigidity of the neck. This is frequently not done; for obvious reasons we hesitate to do a lumbar puncture on patients who are not extremely sick. In the last report of Viets, a patient was so mildly sick that there was some doubt in his mind as to the advisability of doing a lumbar puncture. One puncture, however, was done and not repeated for obvious reasons as the patient was on the road to recovery. In the cases reported, only two patients had a cell count of over five hundred; one had eight hundred and the other had sixteen hundred. Sometimes the cell count is higher than this; it may go up to as high as three or four thousand cells, but no higher.

There is one other thing I would like to comment upon and that is the occurrence of Kernig's sign. I think Kernig's sign is a delusion and snare and think it should be omitted from textbooks. A very large number of people have Kernig's sign. If of any value, it is a negative sign; if it is not present, it is very doubtful that the patient has a meningeal irritation. As a positive sign, it is of little value indeed.

The recovery of these patients is really quite dramatic. They will sometimes, just as the case I mentioned, recover after one or two spinal punctures. The severity of the symptoms seems to be in direct relation to the involvement of the encephalon. If a patient, whose signs are predominately meningeal comes into the ward, you may be quite sure that the patient is not particularly

sick. On the other hand, if the patient has encephalomeningitis, in which the encephalitis is exaggerated, for instance, with stupor, coma and other expressions of encephalitis, you may be sure the patient's condition is precarious. I do not remember if it was stated in the paper presented whether or not the cases reported had many signs of encephalitis. My recollection is that the encephalitic symptoms were rare.

I hope that you will be on the lookout for these cases and hope that when patients present themselves with fever, headache, drowsiness and stiffness of the neck, you will consider seriously the advisability of doing a lumbar puncture from an epidemiologic as well as a diagnostic point of view.

Dr. J. O. Weilbaecher, Jr. (New Orleans): On the service of a hospital as large as the Charity Hospital of Louisiana, we are apt to see more cases of this type than the men in private practice. There are a number of patients who present definite clinical signs of meningitis in whom an examination of the spinal fluid reveals essentially an increase in lymphocytes with or without the presence of globulin. To state definitely that these cases are anything other than lymphocytic meningitis would not be accurate.

Armstrong, Lillie and some other workers, as mentioned by Dr. Tripoli, have isolated a virus which they claim to be the specific etiologic agent for acute lymphocytic meningitis. They have been able to demonstrate the presence of antibodies against this virus in the blood of patients who have recovered from the disease. These antibodies, which may appear within two weeks of the illness, may be demonstrable as long as two years by cross immunization and neutralization tests. Some authors have not accepted these views believing that the disease is an attenuated form of some other virus disease of the central nervous system, such as poliomyelitis, epidemic encephalitis or herpes zoster. This is an assumption on their part which has been covered in Wallgren's criteria. However, Wilson of the University of Virginia in presenting a paper on virus diseases of the nervous system over a year ago mentioned the large number of mild forms of acute anterior poliomyelitis occurring during an epidemic of 183 cases in Virginia in 1935. Watts of Washington, D. C., who discussed this paper, mentioned that many of these mild cases were suspected of having had lymphocytic meningitis and specimens of their blood were sent to Armstrong and Lillie for examination. However, they were unsuccessful in demonstrating any protective antibodies for the suspected lymphocytic meningitis. Thus, there is much controversy on this subject. Probably much time and work will be required to determine whether this disease actually is a specific entity known as acute lymphocytic meningitis or choriomeningitis or whether it represents some modified form of virus disease of the nervous system already recognized.

Dr. C. S. Holbrook (New Orleans): I am glad of the opportunity to relate my experience with this type of meningitis. My first experience gave me considerable concern because in one of the smaller towns, two children in the same family, who were attending school, became infected. I had these children at Touro and ultimately we sent the blood East and it was verified as containing this virus. The question of whether or not we were dealing with non-paralytic poliomyelitis was decidedly perplexing. This was four or five years ago. We did a great deal of telephoning between here and the town because they wanted to close the local schools as they felt that there was an epidemic of infantile paralysis in their midst and it was with considerable hesitancy that we advised against it.

I have seen two or three additional cases from that section of the state. In fact I have a patient at Touro at the present time. It is not verified as far as virus is concerned but it seems to fit into the category. There are about 90 per cent lymphocytes but an entirely negative fluid as far as organisms and complement fixation tests are concerned. The patient does not seem to be very sick.

It is my feeling that a number of the patients probably go by unrecognized as the symptoms are not very distressing and might be passed as migraine or some toxic disturbance. As practically all patients get well, I do not think that what we do for them helps a great deal. The spinal puncture, when the pressure is up, gives some relief but I am sure that all these people would get well whether or not a great deal is done. I think the difficulty in diagnosis is to recognize those cases that might be poliomyelitis. Of course, the chance of tuberculous meningitis is there but the course of the disease, mildness of symptoms, the tendency to get better after a few days instead of progressively worse, rather clears the diagnosis.

Dr. George F. C. Fasting (New Orleans): While this disease remains at the present time important more as a medical curiosity, there is a possibility that it will increase in number of cases. There are, from the experimentalists' standpoint, certain points of great interest. The fact that the virus can be passed to animals by the use of spinal fluid is not the case in anterior poliomyelitis or encephalitis. Why this is might arouse curiosity because it might have a bearing on the mechanism conveying the infection into the central nervous system.

The second point of interest is the fact that this virus has been recovered so readily from urine and tissues, which is not the case in poliomyelitis, encephalitis and other diseases of the central nervous system. This may have some bearing on why they get well so quick. The question arises, is it the fact that the virus is rapidly assimilated by the reticulo-endothelial system that immunity can be

so rapidly produced or aided, and that similar condition does not prevail in the case of poliomyelitis?

As to the source of this infection, we are now, of course, in a position to be more liberal in our views. The recent work in encephalitis in relation to horses, birds, rodents and animals has been very helpful. Distemper syndrome in dogs, for instance, is a disease of the nervous system having different etiologies. There has, in recent articles, been published interesting observatory nervous diseases in chickens and pigeons having some analogy to the disease under discussion.

A point of interest is the refractoriness of the rabbit. If one raises enough rabbits and watches them, one will observe that when they are young, quite a number of them will die from causes that appear to be different from disturbances of the intestinal tract and ear mange. The peculiar disease takes place only in the first three months of the rabbit's life and it may be that the refractoriness the rabbit later exhibits is due to the experimental use of older rabbits.

Another point I would like to emphasize is one which Dr. Musser brought out with reference to

the spinal taps and early recovery phase. We have had occasion to follow these cases in the laboratory and one might say the laboratory often has the jump on the clinician. If the laboratory can obtain a second and a third specimen of spinal fluid eight hours and sixteen hours after the first is taken, the diagnosis will appear almost a certainty. Commensurate with the speed in diagnosis is the relief experienced by the patient as a result of spinal drainage which is not attained by the use of any drug.

Dr. Carlo J. Tripoli (In conclusion): There is one other point that I would like to make. Armstrong, from the Public Health Service, has said on numerous occasions that he would appreciate the opportunity of receiving the blood and spinal fluid in the early stages of this disease, in the first two weeks; after the second week of the disease to receive blood serum. The spinal fluid during the first two weeks is injected into animals; the virus is easily transmitted. After two weeks the immune bodies are in such abundance that it is relatively easy for him to demonstrate the virus in the blood by neutralization tests. We should take advantage of this opportunity where we do not have complete facilities on hand.

---

## THE SYMPTOMS, DIAGNOSIS AND TREATMENT OF PELLAGRA WITH SPECIAL REFERENCE TO THE USE OF NICOTINIC ACID\*

J. PRESTON DAVIS, M. D.  
LAKE PROVIDENCE, LA.

Pellagra is the name of a disease characterized by a complexity of cutaneous, gastrointestinal and nervous symptoms and manifestations. The name is a combination of two words, "pellis", skin, and "agra", rough.

### HISTORICAL

The first published account of pellagra was that of a Spanish physician, Casal, in 1735. Shortly thereafter it was recognized as a widespread malady in northern Italy, where it was studied by Strombio in 1786. Pellagra is now quite prevalent in Egypt, Germany, India, Denmark, West Indies, Central and South America and the United States. Sporadic cases resembling pellagra were reported in the United States as early

as 1850, but its existence in epidemic, or endemic proportions was not recognized until 1907.

Beekman<sup>1</sup> has this to say, "Between the years 1907 and 1915, the incidence steadily mounted, then declined for some years, and is apparently during the past few years quite sharply rising again." Beekman also said, "The four outstanding features of this disease which will fix the characteristic picture in mind are the four D's, dermatitis, diarrhea, dementia and death."

You know through memory, or by history, there was a panic in 1907. There were many cases of pellagra during this period. During the years 1914 and 1915, or the early part of the World War, there was a period of economic depression, and a recurrence of pellagra during this time. This was the pellagra Beekman spoke of when he called it the disease of the four D's.

There was little pellagra seen again until the years 1930-33, when the disease was again widespread. The cardinal picture at this time was characterized by the three D's, diarrhea, dermatitis and dementia, few or no deaths occurring as diet and yeast

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

therapy had been introduced prior to this time.

During the years, 1934 to 1937, there were few cases of pellagra. Since the latter part of 1937, the incidence of pellagra has gradually mounted.

In a Southern Medical Journal of 1913, the following things were noted about pellagra: "Surgeon General C. H. Lavinder, United States Public Health Service, published a few statistics concerning the prevalence of pellagra. He stated more white males and females were affected than colored. Rural cases exceeded urban. The disease does not spare the well-to-do, though the poor suffer most. It is rarely that two cases develop in the same house. The disease was practically unknown until a few years ago, yet within this brief period it has claimed not less than 30,000 with a fatality rate in excess of 39 per cent."

Also in 1913, The Thompson-McFadden Commission held a most noteworthy meeting in Spartanburg, North Carolina. The report is summarized as follows: "The supposition that good, or spoiled maize is the essential cause of pellagra is not supported. Pellagra is in all probability an infectious disease, communicable by a means unknown. If it is distributed by blood-sucking insects, the *Stomoxys calcitrans* would appear to be the most probable carrier. We have discovered no evidence incriminating flies. As far as treatment is concerned, by far the most useful drug, in my opinion, is urotropin."

Jobling and Arnold, in 1923, did some experimental work and put forth the idea that pellagra is an infectious disease which thrives in an intestinal tract overloaded with carbohydrates. Smith's 1931 exhaustive preliminary study indicated that biologic effect due to solar rays, plus faulty sulphur metabolism caused pellagra. In 1932, Bliss proposed an iron deficiency theory. Thornhouser, of Germany, in 1933, proposed that pellagra was an endocrine disturbance.

It should be mentioned that from time to time authors have attempted to relate the disease more or less directly with alco-

holic addictions, while others saw a number of cases in alcoholics and also saw cases in childhood and in those who never used alcohol. These conjectures resemble the early theories concerning beriberi to a startling degree. There was the theory of spoiled rice, theory of infection and all the rest.

The opinions of men years ago, therefore, are amusing only when considered lightly; any deeper reflections inevitably bring to mind the complexity of present day opinions, and the question of what the future opinions will be. The theory which is serving us best today is that pellagra is a dietary deficiency disease.

You are all familiar with Goldberger's experiments in 1915 in the Mississippi Penitentiary. To eleven healthy male prisoners, volunteers, he fed a diet of wheat flour, degerminated cornmeal, polished rice, starch, sugar, molasses, pork fat, sweet potatoes, collards, turnip greens and coffee. At the end of six months, six of the eleven men developed a condition competent physicians pronounced pellagra.

#### MORBID ANATOMY

The visceral lesions are mostly atrophic and degenerative. Degeneration of ganglion cells of the brain and cord are commonly found.

#### SYMPTOMS

The most obvious manifestations of pellagra usually appear first in the spring, although they are preceded for weeks by less pronounced disturbances consisting of lassitude, muscular weakness, vertigo and epigastric discomfort. When fully developed, the disease is characterized by derangements of digestion, especially recurring diarrhea, though constipation may occur. A pellagrin will exhibit an erythematous-squamous skin eruption which affects chiefly the exposed parts of the body, as the back of the hands and forearms, face and neck. Mucous membrane lesions are often noted as glossitis, stomatitis, urethritis and vaginitis.

The nervous symptoms of the early stages consist chiefly of neurasthenia with melancholy moods, paresthesias, tremors, and

muscular cramps. The mental symptoms are extremely varied, with usually profound depression as the predominating feature. In some cases there may be severe psychosis, hallucinations of sight and hearing and delusions of persecutory nature.

#### DIAGNOSIS

The diagnosis is usually easily made, except in the prodromal or preclinical stages, or ill-defined cases occurring outside of the usual district for the disease. Endemic pellagra occurs most often in the early spring and summer. It is seen most often in the poorer classes. There are more cases of pellagra during the years of economic distress. The diagnosis is based on the occurrence, or recurrence each spring of a sharply delimited symmetrical and pigmented erythematous-squamous eruption in association with nervous symptoms and gastrointestinal disturbances, especially diarrhea. Secondary and northern pellagra are not so easily diagnosed. The majority of cases of secondary pellagra are due to a morbid condition of the gastrointestinal tract such as colitis, dysentery, intestinal operations, cancer or chronic peptic ulcer, or to some factor which interferes with the assimilation of foods, such as food fads, voluntary restriction of diet, or chronic alcoholism.

Due to the fact that pellagra in the North is often associated with chronic alcoholism, while that in the South is not, there was questioned whether the northern and southern forms were the same disease, and would respond to the same therapy. Consequently, a group of physicians, including Spies and McLester, joined forces to carry out a study of this problem. Their study showed that the diseases have the same clinical symptoms and similar lesions and respond to the same methods of therapy.

#### TREATMENT

As pellagra is now considered a dietary deficiency disease, the treatment is directed toward relieving symptoms, healing the lesions and relieving the causative conditions.

This brings up the consideration of drugs, foods and vitamins. The drugs usually employed are symptomatic, as lotions for dermatitis, those commonly used for diarrhea, sedatives when needed, tonics and hematics. Various preparations of iron, arsenic and yeast are extensively prescribed. As the pellagra patient has been living on improper diet, the carbohydrate intake is disproportionately large, and the proteins and fresh vegetables have been woefully lacking. This dietary imbalance should be corrected. Before the introduction of nicotinic acid, following the work of Goldberger, Spies and McLester worked out a form of treatment which reduced the mortality rate from 54 to 5 per cent. The treatment used was adequate nursing care, a well balanced diet consisting of 4,500 calories, or more per day, with an additional amount if food was lost through diarrhea or vomiting, and the administration of 10 to 20 drams of good brewers' yeast daily and intravenous injections of liver extracts.

The success of the treatment of pellagra with a balanced diet, yeast, and liver extract, has lately been the subject of much attention by numerous investigators. There has been much study in the past several months of the whole field of food and vitamins. Chemists, pediatricians and internists have been concerned for some time with the clinical application of the newer knowledge of the vitamins.

Lately, all the branches of medicine are recognizing the uses of vitamins. Surgeons now recognize that ulcer, cancer, biliary and kidney calculi, chronic sepsis and hyperthyroidism are often related to dietary and vitamin imbalances. Avitaminosis, or a subclinical deficiency coexists with so many surgical conditions that vitamin therapy has become increasingly important in surgical practice.

Vitamin A is necessary for the maintenance of the normal coverings of the body, hair, skin, nails and the mucous linings of cavities and ducts. Thus it becomes important in wound healing, which is of special interest to surgeons.

Certain skin lesions are also early manifestations of vitamin A deficiency, so we see the dermatologist interested in vitamins. A deficiency of vitamin A not only affects the mucous membranes, but may induce structural abnormalities of the teeth. Vitamin A has also been called the anti-infective vitamin. Vitamin A is also essential for proper growth, and a lack of this vitamin may cause night blindness, which should be of interest to all automobile drivers and to ophthalmologists.

Vitamin C, the antiscorbutic vitamin, ascorbic acid or cevitamic acid is, as you know, the one responsible for scurvy. Vitamin C is intimately related to the production of fibrous tissues, and hence becomes of interest also to the surgeon, as it is an important factor in the repair of wounds.

Vitamin D, or antirachitic factor, is of interest to the internist, pediatrician and orthopedist. Chief deficiency symptoms and signs are epiphyseal enlargement of long bones, delayed closing of the fontanel, soft bones, pigeon breast, bow legs, dental deformations and abnormal formations of calcium and phosphorus in the blood.

Vitamin E, or antisterility vitamin, is believed by some to be of use in preventing certain types of habitual abortion. Some claim vitamin E to be an anaphrodisiac.

Vitamin B is of special interest to all the branches of internal medicine. In it is found the pellagra preventing factor. The vitamin B complex was the first vitamin to be recognized and studied as a dietary factor essential to the life and well being of man. The names of Takaki in 1885, Eykman in 1897, Hokpins in 1906, and Funk in 1912, will always be associated with the early work in this field. After a time the vitamin was separated into two fractions: (1) A heat labile component, which became known as vitamin B (now vitamin B<sub>1</sub>), and which possessed antineuritic and antiberiberi properties; (2) a heat stable component which was essential for growth, possessed antipellagra properties, and became known as vitamin B<sub>2</sub>, or vitamin G in honor of Goldberger. More recently, rapid progress has been made in the breaking down

of the B complex into additional components. The known factors at this time are: (1) Vitamin B<sub>1</sub>, antineuritic, antiberiberi factors, which have been isolated and synthesized.

The Council on Pharmacy and Chemistry has adopted the name thiamin to designate vitamin B<sub>1</sub>, and thiamin chloride is now the proprietary name of crystalline B<sub>1</sub> hydrochloride. The chief deficiency signs and symptoms are beriberi, neuritis, anorexia, retarded growth, and vasomotor symptoms. (2) Riboflavin, now synonymous with lactoflavin, vitamin G and vitamin B<sub>2</sub>, has been isolated, identified, and synthesized. Combined with phosphoric acid and a protein, it forms an enzyme which is essential for tissue oxidation. This indicates that it is probably an important nutritional essential for man. (3) Additional factors for vitamin B complex are certain filtrate factors, as vitamin B<sub>3</sub>, B<sub>4</sub>, B<sub>5</sub>, B<sub>6</sub>, W, K, Y, and L. (4) Nicotinic acid which is now considered identical with the pellagra preventive factor is another component of the vitamin B complex.

#### NICOTINIC ACID

Nicotinic acid was prepared by oxidation of nicotine as early as 1867. Chemically, nicotinic acid is pyridine carboxylic acid.

Elvehjem,<sup>2</sup> of the University of Wisconsin, announced in 1937, that he and his associates had cured blacktongue in dogs by adding nicotinic acid, or nicotinic acid amide to the diet. He suggested that nicotinic acid be tested in human pellagrins. Numerous clinicians promptly began such experimentations.

The first reports of the use of nicotinic acid in the treatment of pellagra were independently and simultaneously reported by four different groups of workers. The first published report showing the use of nicotinic acid in the treatment of pellagra was by Fout and his associates in November, 1937. In December, 1937, there appeared two communications, one by Harris and the other by Ruffin and Smith who reported the effectiveness of nicotinic acid in pellagra. Spies, Cooper and Blankenhorn reported a series of 17 cases in Feb-

ruary, 1938, which was successfully treated by the use of nicotinic acid.

V. P. Sydenstricker,<sup>3</sup> in 1938, reported the use of nicotinic acid in the treatment of pellagra. He made the following observations: "Adequate doses of nicotinic acid cause dramatic healing of the mucosal lesions of pellagra. Glossitis, stomatitis and diarrhea disappear in from 24 to 72 hours. The healing of dermatitis may be delayed for as long as seven to ten days, but mental symptoms usually improve rapidly, sometimes dramatically during the first few days of treatment."

Spies and Douglas, after making a careful study of 60 pellagrins with acute psychosis and other manifestations of pellagra, 15 pellagrins with no mental symptoms, but with characteristic dermatitis, glossitis, stomatitis and gastrointestinal involvements, 424 subclinical and mild pellagrins who had been subject to one or two annual recurrences of the lesions, and 129 pellagrins who had one or two recurrences of their neurotic symptoms each pellagra season, made the following observations: "The severe psychosis of pellagra in the 60 patients was relieved following the administration of nicotinic acid or caramine within ten hours to six days. The mental symptoms of the 60 pellagrins were the severe acute type, many of the patients were violent, and severely hallucinated. Others were severely depressed. It is difficult to describe the change in these patients after therapy was begun. The maniacal patients became calm; the depressed, cheerful; and, legally speaking, the insane became sane again. The 15 pellagrins with the extensive mucous membrane lesions and dermal lesions and severe gastrointestinal involvement, but no mental symptoms, were all promptly relieved by nicotinic acid. The other large group of subclinical recurrences, or mild pellagrins were promptly relieved."

In 1938, Matthews<sup>4</sup> reported his observations in the use of nicotinic acid on 76 cases. He had this to say: "The most striking, as well as most gratifying observation in my experience was the rapid healing of the lesions in the alimentary

tract, with the development of an excellent appetite and gastrointestinal function, and the spectacular disappearance of the mental symptoms."

France, Richard, Bates, Robly and Matthews<sup>5</sup> reporting two cases of pellagra treated with nicotinic acid in the Johns Hopkins Hospital, July 1938, had this to say: "The rapid and complete healing of the glossitis was perhaps the most striking picture of the general improvement of the patient. However, the gradual replacement of the scaling, leathery, ulcerated skin by pinkish, smooth, delicate epithelium was very impressive. Improvement in the mental lethargy was definite."

An interesting paper was given by Ruffin and Smith<sup>6</sup> in Oklahoma City on November 17, 1938, at the meeting of the Southern Medical Association. They reported a series of 85 patients with pellagra who had been studied at Duke Hospital, with the following observations:

"(1) Nicotinic acid in doses of 100 mg. per day given parenterally is highly effective in the treatment of pellagra; (2) the oral dose should be larger, 100 mg. three times a day; (3) doses of 1 gm. per day produce definite toxic symptoms; (4) associated deficiencies, particularly B<sub>1</sub>, are not affected by nicotinic acid; (5) intravenous glucose and normal saline are extremely important in the treatment of critically ill patients; (6) in the routine treatment of pellagra, nicotinic acid should be supplemented by a well balanced diet."

Sebrell and Butler,<sup>7</sup> said: "Nicotinic acid in daily doses of 50 mg. given orally produced transient, unpleasant, but harmless reactions. Although the reactions are disagreeable, they persist but a short time, and there is no evidence that any harm is done by them. Therefore, their occurrence should not be allowed to interfere with the therapeutic use of large doses of nicotinic acid."

During the past few months I have treated 20 patients with pellagra with nicotinic acid. I consider it a specific. It is really a pleasure to watch the immediate

and almost miraculous response of the patient to the nicotinic acid therapy.

My collie dog developed a severe case of blacktongue on a pellagra-producing diet, and was snatched from sure death by nicotinic acid and a change of diet.

#### CONCLUSIONS

1. Pellagra is a dietary deficiency disease.
2. The form of treatment outlined by Spies and McLester, following the works of Goldberger, was unparalleled at that time.
3. The nicotinic acid treatment produces more quickly and more dramatically the healing of pellagrous lesions and the relief of pellagra symptoms than other forms of treatment.
4. The nicotinic acid treatment is within reach of all as it is inexpensive.
5. There is a wide range of dosage with relative safety up to 1000 mg. daily.
6. Adequate diet should be supplied, including fresh vegetables and proteins.
7. Preclinical pellagrins should receive prophylactic doses of nicotinic acid and their dietary habits should be corrected.
8. Neuritis in pellagra patients is not relieved by nicotinic acid, but is relieved by thiamin.
9. Psychotic patients other than pellagrins are not benefited by nicotinic acid.
10. Nicotinic acid is a specific for blacktongue in dogs.

#### REFERENCES

1. Beekman, H.: Treatment in General Practice, W. B. Saunders Co., 1934.
2. Elvehjem, C. A. et al: Relation of nicotinic acid and nicotinic acid amide to canine blacktongue, *J. Am. Chem. Soc.*, 59:1767, 1937.
3. Sydenstricker, V. P.: Nicotinic acid in prevention and treatment of pellagra, *J. M. A. Georgia*, 27:321, 1938.
4. Matthews, R. S.: Pellagra and nicotinic acid, *J. A. M. A.*, 111:1148, 1938.
5. France, R., et al: Two cases of pellagra treated with nicotinic acid, *Bull. Johns Hopkins Hosp.*, 64:46, 1938.
6. Ruffin, J. M. and Smith, D. T.: Treatment of pellagra with special reference to the use of nicotinic acid, *South. M. J.*, 32:40, 1939.
7. Sebrell, W. H., and Butler, R. E.: Nicotinic acid, *J. A. M. A.*, 111:2286, 1938.

#### DISCUSSION

Dr. D. B. Barber (Alexandria): The main thing I wish to do is to emphasize that pellagra is a dietary deficiency, due to vitamin B<sub>2</sub> deficiency. The doctor has given an outline of the other vitamins, but to discuss them adequately would take hours. The etiology of pellagra is generally understood to be due to a deficiency in a certain frac-

tion of vitamin B<sub>2</sub>, or G, also called Goldberger's PP fraction, and has been recently isolated in pure form and called nicotinic acid.

Pellagra is most often seen among the poorer classes, tenant farmers, industrial workers in industrial centers. As a rule, these people are poorly educated, and either lack the knowledge or the energy to provide for themselves the better things of life. In the South, pellagra is most often seen in the families of the tenant farmers. I remember as a boy that the standard rations for a share cropper were one pound of bacon, one peck of corn meal, and one pound of coffee, and the rest of the diet had to be supplied by the tenants themselves. Often there was no other food than the furnished rations. One seldom saw a cow on the place. Chickens were very scarce, and the few they had were saved for the visit of the preacher. We called the women of this class "meat fryers", for they seldom could cook any other way except with the frying pan, and if this cooking utensil were taken away from them, they would probably starve to death. I doubt if conditions are much improved with this class of people to this day.

Another thought that I wish to bring out is that a person can starve in the midst of plenty, and have faulty dietary habits, either from choice or lack of proper training in selection of food. Also, there are usually associated other vitamin deficiencies, especially vitamin C, and to secure the best results in the treatment, these factors must be added to the diet. I think that we should begin in the grade schools and educate the children, especially the girls, how to plan a balanced diet, and then we will have less pellagra and similar nutritional disturbances.

Dr. Louis Ochs (New Orleans): Of course it has been accepted that nicotinic acid is specific in the treatment of pellagra, but I think we should bear in mind that conditions of the human being are not synonymous with those of the experimental animal. More than one factor is lacking in pellagra in clinical practice, and, as has already been stressed, adequate diet should be given along with nicotinic acid and the rest of the B complex. If the patient is lacking in nicotinic acid or the pellagra preventive factor, the chances are he will be deficient in other factors of the B complex.

In our free clinic at Touro Infirmary we do not see much pellagra, and we have had a lot of nicotinic acid there and rather than let it go to waste, we put it to other uses. We have noticed that nicotinic acid is particularly useful, both prophylactically and therapeutically, in cases of persistent vomiting and anorexia. It has also been useful in postoperative cases where, because of the operation, for example, a gastric operation, the intake of food as well as vitamins has to be limited.

McGinty, at the recent meeting of the American College of Physicians, said that nicotinic acid was



useful when given with sulfanilamide. It will allay particularly the gastrointestinal toxic manifestations. Of course, it will not prevent the anemia or agranulocytic angina. So far as sulfapyridine is concerned, I have used that very seldom, and to my regret. I do not think nicotinic acid would be indicated along with sulfapyridine.

Dr. D. N. Silverman (New Orleans): I think in our clinical practice we see the degree of pellagra which might be termed "pre-pellagra lesions", often associated with intestinal disturbances. It occurs not necessarily in the impoverished, but in the well off, following any disorders of eating. That has happened in different classes of individuals, including physicians. I had the opportunity to see recently a doctor who developed pre-pellagra lesions of the mouth and bowels. He had no idea he was supposed to eat meat or protein food. He had been getting throat treatments for the mouth lesions which cleared up with the administration of the so-called pellagra specific.

It has been brought out that we ourselves are instrumental in producing degrees of pellagra by means of some of our diets, particularly those for liver and gallbladder conditions, in which we are inclined to give a high carbohydrate diet. Symptomatology is brought on which is not only related to the mouth and intestinal tract but to the joints and nerves. Macatee, of Detroit, showed that a high carbohydrate diet produced this and that a high protein diet would overcome it. We sometimes encounter in individuals gastrointestinal symptoms which are difficult to recognize as pellagra; they sometimes simulate all the signs of peptic ulcer. I saw a patient in whom an ulcer of the duodenum was suspected and this was confirmed by x-ray. At operation, no ulcer was found. Subsequently, and not very long thereafter, the patient developed the clinical syndrome of pellagra. This led us to believe that the nervous symptoms were primary and that the pellagra symptoms developed on top of them.

Dr. John H. Musser (New Orleans): Dr. Davis made the remark in his paper that pellagra is easy to diagnose, but, just as Dr. Silverman brought out, there are patients who suffer from a subclinical pellagra in whom the diagnosis is hard to make. We have had some experience, just as Dr. Silverman has, in treating patients with vague gastrointestinal disorders, sore mouths, and similar possible pellagra expressions. We give by way of a therapeutic test large doses of nicotinic acid; the results have often been astounding. I think nicotinic acid is definitely specific. We have kept patients on the ward on a pellagra-producing diet and given them nicotinic acid and their lesions disappeared regardless of and in spite of the food they were getting on this diet.

That suggestion was made by Sebrell, which I have also advanced, that people who live on rations such as Dr. Barber mentioned might very well be

given, as a public health measure, small doses of nicotinic acid. Unfortunately, nicotinic acid brings sometimes uncomfortable reactions of varying duration and people object to taking it. They ought to put nicotinic acid into salt, as with the iodides, or the patients might be given tablets to be taken for a little while. I am quite sure that these individuals who are undernourished and not receiving the proper diet would be materially benefited.

Dr. W. R. Mathews (Shreveport): Among the organic lesions of the gastrointestinal tract which may be important in the causation of secondary pellagra, I should like to mention two, stricture of the rectum due to lymphopathia venereum and amebiasis. It is my impression that during the past twelve or eighteen months at the Shreveport Charity Hospital we have had very few cases of pellagra in which one or the other of these lesions was not present. In an indigent patient whose economic and social status would suggest primary dietary deficiency, one is likely to overlook organic lesions of the lower bowel, the chief symptom of which is diarrhea. I can recall but one case of full blown pellagra coming to autopsy during the past twelve months at Charity Hospital who did not have either rectal stricture or amebic dysentery.

Dr. A. A. Herold (Shreveport): I want to stress that if these pre-pellagra lesions are followed up and given proper attention, symptoms such as glossitis and stomatitis can be prevented, whether we consider pellagra a true disease or a symptom.

I am interested in the history of pellagra in this country. Although I have not seen much of it in the last few years, when I was Parish Health Officer in 1916, I received a visit from Dr. Goldberger, who, at that time, was stressing dietary deficiency, and stated that the deficiency was represented by "P. P.", the exact nature of which we did not know at that time. I read a paper before this Society in 1916 entitled, "A Contribution to the Treatment of Pellagra," in which I reported some severe cases with marked mucous membrane, skin, and intestinal lesions. Following the work of Goldberger, in which he stressed high protein diet, and that of Dyer and Bass, who found that there was a lower coagulability of the blood in pellagra, I decided that horse serum would most likely fill the gap, and therefore gave a series of patients this preparation intravenously, the results of which were startling, clearing all the symptoms markedly except those of the central nervous system.

Today, I depend not alone on nicotinic acid, but still use brewers' yeast and a high vitamin diet. I recall visiting Dr. Goldberger in Washington in 1926, and asked him if he had anything new in pellagra therapy; he showed me a bottle of brewers' yeast and said, "Here it is." That is all very interesting because that was before we knew much of the work of Funk and others on the vitamins.

Dr. J. Preston Davis (In conclusion): In regard to the remark about the diagnosis being easy, I said that the diagnosis is usually easily made except in the preclinical stages.

—o—

## PUBLIC HEALTH ASPECTS OF THE SYPHILITIC PATIENT\*

ALFRED L. ADAM, M. D.  
SHREVEPORT, LA.

The public health aspects of the patient with syphilis are manifold, and only some of the more important phases are presented in this paper, feeling that such a presentation is timely. The simple epidemiologic considerations and treatment objectives outlined here are not complete, but will serve in a majority of cases. The first, and, I believe the most important phase, is the doing of some type of epidemiology by the physician treating the patient, and this paper is being presented so as to bring to the attention of the physician treating syphilis casually, the place of importance he holds in our fight against syphilis. It is my purpose to show that his position is one of major importance, and weakness or strength on his part may decide whether our present and future attacks will be rewarded with little or great success. Public health talks and papers on the subject of syphilis have the tendency, we hope, of making the public syphilis conscious and as a result of this consciousness patients not only seek out their physicians for treatment but also for advice and guidance. So the task of keeping up the public health work and the treatment of the patient with syphilis falls squarely where it properly belongs, on the one who in his practice, clinic or otherwise, encounters such patients.

### EPIDEMIOLOGIC CONSIDERATIONS

A physician may be indifferent and consider only the patient presenting himself for treatment, even when that patient is infectious. It is obvious that contacts, both

source and subsequent, should be considered but oftentimes the physician does not seek out contacts for fear the quaint question of ethics and self exploitation for gain, might place him in malodor with his fellow practitioners. Probably more often he is indifferent, and considers it no concern of his as to from whom the patient has acquired syphilis, and to whom he has given syphilis. Oddly enough that same physician would be greatly concerned over a sporadic case of typhoid or diphtheria. When we physicians come to think of syphilis as we do other communicable diseases, half the battle will have been won.

Proper investigation through the patient presenting himself with syphilis is not difficult. He is acutely interested as soon as he finds he has syphilis and makes an excellent epidemiologic assistant. A study of the patient's activities before and after infectious lesions occur would result in more patients being placed under treatment, would limit somewhat the spread of syphilis, and would definitely mean added income for the physician handling the case and for his confrères. The bulk of the private practitioner's practice is among the middle classes, and syphilis of that stratum of society may well be a stumbling block in our program. Consequently then this paper is in the nature of an appeal and a challenge to the moral fiber of our physicians of today, urging them to take their proper place in this work.

The subjects of inadequate epidemiologic investigation and inadequate treatment are highly important and are given great, but I do not believe, sufficient emphasis in all of our clinics with but few notable exceptions.

There is one phase of syphilis that is probably better done by the country doctor than by the best clinics in the world, and that is real epidemiology in his practice, when his interest is aroused. He enjoys a high respect and appreciation among his patients, that is, good will not found in any of the large cities. Having a mental picture of his practice and a knowledge of economic conditions, social strata and moral

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 24, 1939.

levels in his area of activity it is relatively easy to find and evaluate a contact once that contact is named. Proper disposition of that contact immediately suggests itself to him because of this intimate knowledge. Probabilities as to the integrity of a patient's statement, and the financial status of the patient involved, do not present any difficult problem. Either a patient belongs in someone's private practice, or in a clinic, and proper notification by word of mouth should prove efficacious, the original patient telling source and subsequent contacts to see his, or their doctor. A moderate degree of interest on the part of the physician here can do a great deal more than a public health worker who does not know the patients, and community conditions as well.

The question of securing the proper information about his contacts from a patient with syphilis might be considered here and is but a matter of correct reasoning which varies with the individual patient. In some cases a mere request results in the information given. In other cases a more devious approach is necessary. A rather satisfactory method is to try to arrive at the age of the infection, asking the patient frankly how long he could have had the disease, giving him the impression that this is all important to know, and the patient usually volunteers the dates of suspicious contacts, and finally, all contacts.

After having the dates of contacts one might suggest that he give the names of those contacts whom he would like to have notified of the possibility of their having the disease. Some names will be left out in some cases, and you might state then that you had hoped he would name the one from whom he contracted the disease, but in your opinion, he has not done it so far because of the dates of contact, that is, there are no names to fit some of the dates he has freely given. If the mere statement that the contact should have the benefit of examination and treatment, if necessary, before the disease advances and does possibly irreparable damage, does not result in all of the names being given, a different

approach is suggested. It might be pointed out that knowledge of patients who have the same strain of the germ would help in the study, and treatment of his case, explaining that certain types have a special affinity for the nervous system, others for the heart, and others are apt to belong to the relapsing infectious type. It does not make any difference whether you subscribe to this belief or not. Some authorities think so, and that is sufficient reason for this line of questioning. If the patient still is reticent, point out that some very good friend or even a relative may be infected and subsequently, some innocent girl years from now may have a syphilitic baby, as a result of this chain of syphilis of which he is an important link. Explain that in shooting a mad dog with hydrophobia, no one is interested in the dog except to keep him (the dog) from harming others. In other words the weakminded clandestine prostitute can be pictured in that way.

After understanding and appreciating the important facts about the spread of syphilis the patient will volunteer all the information he has at his command and will show interest, and even enthusiasm in the objectives you are trying to gain,—to bring infectious cases under treatment and treat until non-infectious. One must assure the patient however that his or her name will not appear in any communications, written or otherwise, with any of the contacts. In clinic practice it is helpful to advise the patient that he is expected to do his part in the work, and you expect cooperation in every way from him, just as he has a right to expect cooperation from the clinic in treating his case. In the low I. Q. group one usually needs but to say "How do you expect me to treat you if you do not give me the information that I know is necessary so as to be able to decide what drug and what dose to use."

Here as I said before the patient will tell his doctor whom he has known a long time much more readily because for one thing he knows his confidence will not be violated. In the vast majority of cases he can be trusted to notify his contacts, but if he

does not the doctor will find it easy to notify them.

EXAMINATION OF PATIENTS TO DETERMINE  
THEIR STATUS

Examination of patients is an aspect of the syphilitic patient that is deemed by me to be of paramount importance, especially in infectious and potentially infectious cases. After taking a complete history the patient should be stripped from hat to socks, and examined, preferably in good daylight. All orifices should be examined carefully using a 75-100 watt electric light on a long cord, the latter facilitating and expediting the procedure. All lesions that might possibly contain spirochetes should be scraped and examined by dark field. Dark field of course includes India ink study for treponema and is very efficient in expert hands. In the absence of dark field facilities a capillary pipette may be used to aspirate the fluid from the lesion, and ends sealed with wax, soft bees wax not sealing wax, and the preparation sent special delivery to the nearest state or private laboratory. This pipette method is an excellent one provided the lesion is abraded properly after cleansing. Dry gauze may be used for abrading and cleansing the lesion. In the case of indurated and fibroscleromatous lesions, a file such as used in opening ampuls may be used just to the point of drawing blood as in smallpox vaccination. In lesions of the tonsillar area and cervix, a tightly made cotton applicator may be used to explore and macerate the tissues and to provoke slight bleeding. After provoking slight bleeding wait a few minutes and the lesion will weep and this serum may be picked up with a platinum loop or wooden applicator. The material is placed on a glass slide and a drop of normal salt solution added and with the end of a wooden applicator or toothpick the clots may be fished out. The preparation may be examined immediately if a dark field is available, or the preparation may be aspirated into a capillary pipette and mailed for delayed dark field examination. The addition of saline here is optional. It is interesting to note how easily spirochetes

may be demonstrated in lesions of tonsils, mucous patches of mouth, eroded lesions on sides of the tongue and the secondary lesions about the ano-genital region. Moist papules of flexures or any lesion primary or secondary, no matter where located, which weeps after abrasion should be subjected to dark field examination.

Thorough examination of older cases for early cardiovascular, early neurosyphilis, and eye lesions, is considered very important, as treatment objectives will be gained without therapeutic shock or the dose of arsenicals may be large at outset gaining a therapeutic objective that would not be likely with small tonic doses. Since reducing a patient to non-infectiousness and preventing infectious relapse is one of the major phases of our work, one should try to give at least 20 arsenical doses with 20 weeks of a heavy metal, preferably bismuth. A good point to remember is that the critical point of relapse lies between the fifth and ninth injection of the arsenical. So one should strive to get, at the very least, 12 arsenicals and 12 bismuths into a patient before he lapses.

Objectives to be gained in the handling of a patient with syphilis is a very definite and important public health aspect of syphilis, especially so as case finding and treatment are the basis of the present campaign, and the success of our campaign against syphilis depends on doing these two things well.

PUBLIC HEALTH OBJECTIVES OF EARLY  
MANIFEST SYPHILIS

Early syphilis here means a person who has had syphilis two years or less. The objective manifest is self explanatory—the chancre and secondary lesions being the most important lesions encountered. The patient must be assiduously studied for eye lesions, iritis being found very often in our early cases, early neurosyphilis, and the few cases of early cardiovascular syphilis that will be found under two years. Existing syphilitic pathology and existing non-syphilitic pathology must be determined, correlated and evaluated as they determine our treatment procedure. Consultation should

be sought in all cases not clearly understood. Syphilis cannot be treated by rote.

Public health objectives of the early manifest cases are:

1. Secure complete knowledge of existing syphilitic pathology.

2. Secure complete knowledge of existing non-syphilitic pathology.

3. Epidemiologic investigation of all contacts, source and subsequent.

4. Treat patient to arrest or cure clinical manifestations of the disease.

5. Treat patient to non-infectiousness.

6. Bring contacts under treatment and treat to non-infectiousness.

7. Secure clinical cure through prolonged continuous treatment.

8. Make patient syphilis conscious, that is, educate about syphilis so as to insure: (a) His aid in a public health way in his or her small sphere of activity; (b) to avoid re-infection; (c) to insure treatment in all pregnant women.

#### PUBLIC HEALTH OBJECTIVES OF EARLY LATENT SYPHILIS

The objectives here are the same as the above with the exclusion of points 1 and 4, because no detectable syphilitic pathology exists. Relapsing infectiousness must be considered and one might remember the point about infectiousness of semen.

#### PUBLIC HEALTH OBJECTIVES OF LATE MANIFEST SYPHILIS

The objectives here in cases from two years and up in age involve two important points: First, what damage is syphilis doing or may do to the patient, and second, what damage the patient has done as far as disseminating syphilis, principally to his family, and what benefit may be gained by preventing such a patient from becoming a public burden, and more important decreasing his danger to others through faulty physical activities, such as operating machines in an industrial way or an automobile where his faulty judgment may result in decreased efficiency or may cause loss of life.

The public health objectives here may be classified as:

1. Secure complete knowledge of existing syphilitic pathology.

2. Secure complete knowledge of existing non-syphilitic pathology.

3. Secure cure or arrest of manifest lesions.

4. Secure clinical cure in some cases.

5. Prevent clinical progression.

6. Educate as to future conduct as in 8 of early manifest.

7. Epidemiologic investigation and study of contacts, principally wife and children.

All of the objectives of late manifest syphilis apply here with the exception of 1 and 3.

#### PUBLIC HEALTH OBJECTIVES OF SYPHILIS OF PREGNANCY

Because we can secure a healthy child in 95 per cent of cases where treatment is started before the fifth month, prenatal syphilis should rapidly decrease with the proper education of expectant mothers. Our prime objective here is to get a healthy child free from syphilis. The treatment is very intensive, remembering two points: First, nine out of ten pregnant syphilitic women will not show manifest lesions and pregnant women stand arsenical medication three to six times better than non-pregnant individuals. The protective phase of pregnancy should be considered and the woman treated after delivery for obvious reasons.

#### PRENATAL SYPHILIS

Syphilis here is the same as acquired syphilis, that is, it may be classified in the same manner according to age of the infection and manifest lesions. Examination of the child of a known syphilitic mother should be painstaking, should extend over a period of two years and should include: (a) Thorough physical examination at birth; (b) dark field examination of scrapings from wall of umbilical vein; (c) x-ray of long bones at two weeks; (d) serologic and periodic physical examination from two weeks to two years.

#### SUMMARY AND CONCLUSION

An epidemiologic phase of syphilis has been presented; examination of infectious

cases is stressed; treatment of infectious patients is stressed; objectives related to public health have been outlined.

It is the essayist's hope that this paper may prove thought provoking to the extent of arousing interest in the study of the syphilitic patient as a distinct and important entity in every physician's practice.

#### DISCUSSION

Dr. Dewitt T. Milam (Monroe): In discussing Dr. Adam's paper on the public health aspects of the syphilitic patient, I want to say that it forces the man who is doing private practice to think a lot about what he is doing to help the Public Health Service and to see if he can help them.

As you all know, the public in general has become more or less syphilis minded. Since the subject has been in our journals and newspapers, we get a different atmosphere, and people do not hesitate to talk about syphilis. I think the Public Health Service, at the present time, in the State here and elsewhere, is doing one of the greatest pieces of work I have ever seen, and when I say that I mean that they are treating what we term the indigent patient in cooperation with the men who are specializing or doing general practice. The patient has to receive a certificate to the effect that he is not able to pay for medical services before the Public Health Service will accept him. If an indigent patient goes to the Board of Health, we know the patient is going to get treatment, but he needs that treatment over a period of days, months or years. I believe the Public Health Service, when they first started the campaign to treat syphilitics, was to treat the infectious type of patient who was sent to them. Of course, they had so many they were swamped. When the patient came in he was given a routine Wassermann and, I believe, had to have two positive.

I think the thing Dr. Adam tried to get over in his paper is this: That so many of the men who are specializing in genito-urinary diseases or treating lots of syphilitics never think where the patient has contracted the disease, never ask about contacts, which is more or less social service work. It is lots easier for the Public Health Service to do this. It is hard for me to get patients to tell of contacts; sometimes they will not tell you anything. Dr. Adam brought out that very often they tell him. In other words, what I want to bring out and what I want to impress upon the man treating syphilis is, unless you get assistance from physicians who are doing general practice who are treating syphilitics, you cannot go back further than the particular individual, you cannot get all the links in the chain and cannot accomplish what you want to accomplish. Sometimes the patient will voluntarily tell you where

he got the disease. It may be true, or it may not be.

I disagree with some of the remarks of Dr. Adam. I know he can do it because in the clinics where they are treating indigent patients, those patients get the best service and have to cooperate in order to continue to get treatment. The patient walks into my office and is going somewhere else if he likes. Of course, there are exceptions. We can get some history from some of them, but the usual history is not sufficient to work on. Personally, if a patient gave me the names of 90 contacts, I would not call up one of them. It is mighty hard in my work for me to keep records and report venereal diseases as they should be reported. I do report the greater number and some I do not.

In regard to the treatment of syphilis, some patients will come in with an initial lesion or chancre. The lesion disappears and so this patient in a few weeks or maybe months may have secondary syphilis. He may not; he may skip the secondary stage and may have cerebrospinal syphilis and you may not see him until that time. Those are the patients I think should be sent to the clinics that are being established throughout the State for the benefit of the person who cannot continue this treatment, and it should be impressed upon patients receiving antiluetic treatment that it is for a long period of time. I do not know the routine of the Public Health Service but in private practice, with a primary lesion and diagnosis made by the dark field, I routinely give them continuous treatment over a period of a year and serologic tests during that time and following it. I think continuous treatment is the best.

So I want to impress here: Find out whether the individual is infected and then get him to tell the physician the contacts. You can make the indigent patient do it, but it is mighty hard in the office. I think those of the medical profession who treat luetic persons should keep that in mind, to try to carry out the link in the Public Health Service work, and I am sure if they do it, they will certainly be of help, because to eradicate syphilis is a mighty big thing and it will not be accomplished unless every physician puts his shoulder to the wheel.

Dr. Paul S. Parrino (Franklin): I think that Dr. Adam's comparison of syphilis as a communicable disease with typhoid is well taken. In previous years and even now when we have a case of typhoid, we immediately dispatch the Public Health Service to look into the water supply, where the milk was obtained, and investigate everything to find out all we could when we had this one case of typhoid. For every case of typhoid there are one thousand or more cases of syphilis, and since syphilis is a contagious disease, why not treat it as such? Epidemiologic investigation is required as much as in typhoid or smallpox. It might be

well to recall that in some instances there have been discovered 20 or 30 subsequent contact cases derived from an original source within a year's time. From one individual with infectious syphilis, there were one or two more, and then each one of those spread syphilis to others. There is one series of 32 cases of syphilis in a year's time traced to one source.

That is one of the chief methods used in Scandinavian countries in combating syphilis. If we first stop the spread of syphilis, the treatment of late latent cases then becomes an easy matter.

I would like to emphasize the point of infectious relapses. We see all too much still of physicians giving the patient with syphilis six doses of neo-salvarsan and never seeing him again, and we all know that that amount of treatment is worse than none at all. The large majority of these cases get an infectious relapse and have to go all through the stages of contagion again.

Another point Dr. Adam brought out, that is the diagnosis of prenatal syphilis in the infant. It is too often taken for granted that if the mother has syphilis, the baby has syphilis. We now know that is not always the case. Original work was done on this in 1915 by Fildes and it was only recently brought out again that the mother may have syphilis, and the baby may have a positive cord Wassermann but the baby need not have syphilis.

Unless the baby has obvious clinical syphilis at birth as shown by a careful physical examination, judgment should be withheld. Take blood Wassermans at weekly intervals up to seven or eight weeks. It is better to have the titrated Wassermann performed. In cases where it is eventually

shown that the baby does not have syphilis, the titer of the reagin in the blood declines until a negative Wassermann is obtained at about the eighth week. X-ray of the long bones should also be used but remember that if the mother receives bismuth during gestation, there may be a confusing bismuth line in the bones of the baby.

Dr. George N. Furbeck (Mexico City, Mexico): So many things can be said these days of the public health aspect of the syphilitic patient, but we should also consider the health aspect of the possible syphilitic in our homes. As I was going through Texas coming to the meeting, I stopped in Brownsville, and a card on the dresser in the hotel room advised that all the employees of the hotel were periodically examined for syphilis. If we would educate our clientele to the danger of bringing syphilis into our homes by servants who serve the table and take care of our babies, and to see that they are examined and treated, we would do a great deal in helping to control syphilis.

Dr. A. L. Adam (In conclusion): Dr. Furbeck said something about servants being examined. In Shreveport and Caddo Parish it is the usual practice for the housewives to send all their help to us for a check-up. In practically all cases where the help is of that type where it takes careful investigation they not only send them for a Wassermann but usually we see them when there is an infectious lesion. We examine these patients and do a dark field on all suspicious lesions.

Great credit should go to Dr. Sandidge for starting this movement. The people of Shreveport are health conscious about syphilis and send their servants to be examined, not only for a Wassermann but any suspicious lesion.

# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Acting  
Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

G. C. Anderson, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*

1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

## SEASON'S GREETINGS

The Journal appears rather early in the month of December so that Christmas felicitations may seem a bit premature. However, it has become the custom to send out cards sometimes days and weeks ahead of the Christmas day. In view of this fact and because the January number of the

Journal will be out long after Christmas is a thing of the past, the Journal will at this time extend its best wishes for Christmas to all of its readers.

To members of the State Medical Society we hope and wish that all happiness will come to them and their families at the Christmas season and that the next year will likewise be a happy and a prosperous one.

Christmas is a time of rejoicing and happiness. To the man who has labored faithfully and conscientiously and has worked diligently and given of his best, the worldly rewards may not be entirely satisfactory but there should be a spiritual happiness which would do much to enhance the good cheer of the Christmas Season.

## STATE MEDICINE

A recent address by Dr. Van Etten, President-elect of the American Medical Association, delivered before one of the medical societies of the State of New York, is well worthy of quotation, comment and paraphrasing. This chief representative of organized medicine asked the question: Does the American medical man want the medicine of England, of Hitler or Stalin, or does he want American medicine? He wants to know if the patient is desirous of having personal medical care and if he wants to choose his own doctor. He asks the patient if he wants a doctor to be an employer of the state, working limited hours or days, or does the patient want a doctor to work for him when he needs him.

The statement is made by inspired propagandists that forty million people in this country suffer from a lack of medical care. The pronouncer of such a statement, which obviously is untrue and false, prescribes socialized medicine as carried out in Europe. As a matter of fact any person in this country, almost without exception, can have emergency medical care free of cost any time of the day or night. Every large city, most small towns and rural communities have hospital facilities that are available to people whose incomes are small. A



generous medical profession cares for these people free of charge, or charges according to their means. In refuting the distorted statement that forty million people do not get medical care, how can one explain the fact that the death rates have been and still are steadily falling?

Of course there are a few communities in which medical care may be inadequate but the people in these same communities are also poorly fed, clothed and housed.

The health of the individual and the health of the community would be enhanced materially by slum clearance in the larger centers. In the rural areas teaching the people how properly to live would do much for their health.

The propagandists are making derogatory statements concerning the medical profession which may weaken the medical profession in its contact with patients, a most unfortunate situation because trust and confidence of the patient in his doctor are the first essentials for proper care of the sick man. The aspersions cast against the profession are unfairly presented and are untrue for the most part. As a matter of fact organized medicine stands for the prevention of disease, the protection of children from communicable diseases, the care of deformed and crippled children, the prevention of blindness in the child and for his nutritional improvement. The medical profession stands for the attempted reduction of communicable venereal disease, it stands for proper sanitation, for good food and drug laws and good housing. Absolutely the medical man's function lies in his preservation as the family physician, the guider and helper of innumerable families. He sees the difficulties state education meets, particularly when it has grown too expensive for a community, thousands of teachers unpaid and out of work, only a few new teachers appointed, expensive political manipulations and other evils. The doctor in his practice occasionally considers state medicine in terms of salaried relief from financial worries, but the doctor makes a living and in making this living he forgets about finances in the interest of

his profession. He realizes and appreciates that it is the most fascinating profession in the world and he loves it. All he asks is a fair return for the efforts that he makes in combating disease and helping patients.

---

### COR PULMONALE

The term, cor pulmonale, has been utilized infrequently in the past but nowadays more and more in literature and in everyday conversation the expression is becoming common. Originally intended to express the cardiac failure which arises as result of pulmonary disease, it has now, in common usage, been broadened so that it includes practically all types of cardiac failure in which the right heart is especially involved. According to Brill\* the initial circulatory disorder, if of the right heart, is the primary cor pulmonale. Secondary cor pulmonale develops as a result of antecedent failure of the left heart. The most frequent immediate cause of the primary type is obstruction or increased resistance of the blood flow in the pulmonary circulation somewhere between the conus and the mitral valve. Very occasionally it develops as result of congenital septum defects or organic tricuspid regurgitation.

The general symptoms of a pulmonary nature of this condition are known to every one. Outstanding, of course, are cyanosis, dyspnea, polycythemia, spitting of blood and pulmonary osteo-arthropathy. As a result of failure of the right side of the heart there occurs hypertrophy and dilatation of the right auricle, ventricle and conus, which is readily demonstrated by x-ray, increased venous pressure, accentuated pulmonic second sound and over the pulmonic area murmurs, thrills and gallop rhythm, and lastly a low systemic blood pressure. The increased venous pressure manifests itself by engorgement of the superficial veins, edema, enlarged tender liver, exudates into serous cavities, dimin-

---

\*Brill, I. C.: The clinical manifestations of the various types of right sided heart failure (cor pulmonale), *Ann. Int. Med.*, 13:513, 1939.

ished urinary output and increased cerebrospinal pressure.

Secondary cor pulmonale will not be discussed because it is merely a part of the picture of generalized heart failure. Primary cor pulmonale may be acute, subacute or chronic in its expressions. The acute type is explosive in nature, resembling closely coronary occlusion with extreme dyspnea. There is often pain in the region of the sternum, the precordium or on the other side of the chest or in the shoulders. Concomitantly there occur the symptoms of severe shock which objectively are outstanding. Cyanosis is pronounced, blood pressure of course is low and the pulse is rapid and weak. Once in a while extensive pulmonary edema supervenes. There is a differential point between coronary occlusion and pulmonary embolism, or acute cor pulmonale, in that in the first pain predominates; in the second, dyspnea. The mortality is high and death usually occurs in 50 per cent of patients who die within thirty minutes to twenty-four hours. Oxygen, morphine and atropine are indicated in ample quantities.

The usual immediate cause of pulmonary embolism is thrombosis of the veins of the lower leg so that it is of extreme importance to maintain circulatory sufficiency in the extremities, particularly in older people, following operation. The legs should be kept warm at all times, they should be massaged frequently during the first forty-eight hours and at least two or three times a day until the patient is out of bed. Patients should start to move their legs almost as soon as they have recovered from their narcotic. Carbon dioxide has been recommended by inhalation from time to time during the first forty-eight hours.

Subacute cor pulmonale will produce very much the same series of symptoms only less rapid in their development. It is generally due to a fairly rapid narrowing of the pulmonary bed by metastatic carcinoma. It is an extremely rare condition. Chronic cor pulmonale is really very common indeed. It may be brought about not only by pulmonary fibrosis, as result of pneumoconiosis, tuberculosis or emphysema and chronic bronchitis, but also by such factors as mitral stenosis, deformities of the chest, congenital heart lesions and primary pulmonary arteriosclerosis. The clinical findings are those already mentioned in the early part of this discussion with particular accentuation on cyanosis. The course, naturally, considering the usual etiology, is progressive but prolonged in time. Once in a while the patient dies suddenly as result of acute circulatory failure, more frequently of congestive heart failure but commonest of all reasons for death is the occurrence of an intercurrent infection, usually pneumonia. Treatment of chronic cor pulmonale lies in the effective management of the underlying pulmonary disease. When myocardial weakness develops naturally recourse must be had to rest, digitalis and diuretics. Diuretics are often of great value because edema is relieved, even if only occult, and the patient is materially helped. The physical findings in this condition should be stressed because it is not customary to pay much attention to the pulmonic valve area but it is in this particular region of the chest, often called the area of romance, that the murmurs are more pronounced, where the gallop rhythm is heard and where sometimes thrills may be felt.

---

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### NORTH LOUISIANA SANITARIUM

#### Shreveport

The regular meeting of the North Louisiana Staff was called to order October 24, 1939, by the President, Dr. George Wolfe, with twenty-one members present. Minutes of the previous meeting were read and approved. The Hospital Report for October was read and the deaths discussed.

### SCIENTIFIC PROGRAM

Dr. Lucas presented two interesting cases of pyloric stenosis in infants, pointing out the difference in pyloric stenosis and pylorospasm and emphasizing the indications for operation. Dr. Heard discussed the operation, stressing preoperative and postoperative care, and giving the details of the Ramstedt technic. Dr. Wolfe discussed these

cases and pointed out that the mortality rate in such cases is now very low.

Drs. Wolfe and Heard presented two interesting cases one of which was diagnosed as possible Hodgkin's disease, the patient having a mass in the left upper quadrant and enlarged glands in the neck. Patient returned in two years with estivo-autumnal malaria and was given quinine therapy; returned again in three years with the mass still present. Aspiration of the spleen revealed an abundance of muddy material, containing a great deal of lipid substance, and a diagnosis of cyst of the spleen was made. Later, the spleen was removed and the patient has been in excellent condition since.

The second case presented by Drs. Wolfe and Heard was that of congenital hemolytic icterus in a white female, aged six years. The patient had been jaundiced since birth, with occasional fever and leg pains. Splenectomy was done at which time stones were found in the common bile duct and gallbladder; these stones were removed and the patient has been well since.

N. Judson Bender, M. D., Sec.

#### TOURO INFIRMARY New Orleans

A regular monthly meeting of the staff of Touro Infirmary was held Wednesday, November 8. The first order of scientific business was a clinico-pathologic conference under the leadership of Dr. John A. Lanford. A paper was then presented by Drs. Charles J. Bloom and Eugene B. Vickery on "Hydronephrosis and Hydro-ureter with Secondary Infection in an Infant Five Months of Age." Dr. D. N. Silverman then discussed amebiasis and was followed by Dr. Howard R. Mahorner who reported on "Simultaneous Hyperthyroidism and Carcinoma of the Colon Four Year Later."

#### TRI-STATE HOSPITAL Shreveport

The regular meeting of the staff was called to order October 12, 1939, by Dr. Willis P. Butler, Acting Chairman, twenty-two members being present.

#### SCIENTIFIC PROGRAM

A follow-up report regarding the etiology of the case of right arm paralysis, presented at the September meeting, was given by Dr. J. E. Knighton, Jr.; this proved to be a superior sulcus tumor. The patient was given deep x-ray therapy and when seen last, motor function had improved somewhat.

Dr. H. L. Cohenour reported the case (3023-L) of a white male, aged 7 years, who entered the hospital complaining of sore throat, body rash, nausea, vomiting and abdominal pain. Examination revealed an apathetic white male, temperature 98.4°, tonsils enlarged and slightly inflamed, diffuse abdominal tenderness, generalized adenopathy, and

a ring-like macular eruption on the abdomen and lower extremities. Total white blood count 35,000, polymorphonuclears 92 per cent; urinalysis, 1 + albumin, 4 + acetone. The acidosis cleared up promptly on treatment, but the abdominal tenderness persisted. A laparotomy was done and revealed a diffuse mesenteric lymphadenitis and an apparently normal appendix, which was removed. Patient improved rapidly and postoperative course was uneventful.

Dr. Willis J. Taylor next presented the case (1300-L) of a white male, aged 22 years, who entered the hospital complaining of backache, weakness and numbness of the legs. The latter slowly increased until he developed complete paralysis of both lower extremities and of the urinary bladder 28 hours prior to admission. The past history revealed several furuncles present the preceding month. Examination disclosed motor paralysis of both legs, urinary retention, and loss of sensation anteriorly from umbilicus down and posteriorly from a level two inches above the umbilicus. Very slight cervical rigidity was noted. There was slight tenderness to palpation along the mid-portion of the thoracic spine. Temperature was 100.2° F., pulse 80, respiration 20; urine negative, white blood count 21,200; differential, polymorphonuclears 60 per cent, large leukocytes 10 per cent, small leukocytes 20 per cent, eosinophils 10 per cent. Spinal puncture: pressure 220 mm. water, Queckenstedt positive. Three c.c. clear fluid were withdrawn with difficulty: Cell count 79, with 60 per cent polymorphonuclears; no increase in globulin; negative smear and culture. A tentative diagnosis of anterior poliomyelitis was made. Repeated spinal puncture in three days yielded 4 c.c. xanthochromic fluid. Four c.c. lipiodol were injected; x-ray revealed obstruction opposite first lumbar vertebra. A diagnosis of acute epidural abscess was then made and laminectomy of tenth, eleventh and twelfth thoracic and first lumbar was done. The wound was loosely closed about a rubber tissue drain. Culture of the pus yielded *Staphylococcus albus*. Six days postoperatively, the patient was improved generally; however, no definite change has been noted as yet in the neurologic findings.

The Staff of the Tri-State Hospital held its regular meeting November 9, 1939 at 8 p. m. Dr. T. J. Bush, Chairman, called the meeting to order, thirty-two members and three visitors being present.

Dr. W. P. Butler asked that all staff members familiarize themselves with the State Coroner Laws, since there had been some confusion as to what constitutes a coroner's case.

#### SCIENTIFIC PROGRAM

Dr. Willis J. Taylor reported no definite improvement in the case of acute epidural abscess

reported last month, despite several changes in therapy.

Dr. J. C. Willis, Sr., presented the case (2990-L) of a white female, aged 25 years, who was six and one-half months pregnant and entered the hospital complaining of vaginal bleeding. On examination the placenta was found covering the internal os; a diagnosis of placenta previa was made. Cæsarian section was done and the patient recovered. The types and treatment of placenta previa were discussed by Dr. C. R. Mays.

Dr. M. D. Hargrove next presented the case (3102-L) of a white male, aged 33 years, who entered the hospital complaining of pain in chest, low grade fever, cough and abdominal pain. Previous to this admission he had been seen several times, on all of which occasions he had presented low grade fever, sweats, arthritic pains, pain in chest, occasional hemoptysis and attacks of severe abdominal pain. Examination had consistently revealed a pansinusitis on the left, tachycardia and low grade fever. The findings in the recent exacerbation for which he was admitted to the hospital were confined mostly to the chest. There was a friction rub over the entire left chest and at the right base posteriorly. Breath sounds were diminished. Total white blood count 18,500, polymorphonuclears 81 per cent; temperature 101°; pulse 130; respiration 24. Six repeated blood cultures were negative. During the course of his stay he developed petechial hemorrhages in various locations and also several toes and fingers developed gangrenous areas on them. In the last few days of his illness there appeared a rough systolic murmur at the mitral area. Despite all treatment patient expired. Autopsy revealed pulmonary infarcts with abscesses; mesenteric thromboses, vegetations on mitral valve.

Dr. L. W. Gorton discussed the case with reference to the pansinusitis. Drs. C. R. Gowen, H. Gallager, P. R. Gilmer, W. R. Mathews and W. P. Butler discussed the case with reference to the cause of death and course of infection.

E. W. Booth, M. D., Sec.

HUTCHINSON MEMORIAL CLINIC  
OF THE  
SCHOOL OF MEDICINE  
THE TULANE UNIVERSITY OF LOUISIANA  
New Orleans

Scientific Session, with Presentation of Cases, conducted by the Department of Obstetrics, Dr. E. L. King presiding:

*A Problem in Syphilis* (Dr. C. F. Moore, Jr.): The patient was admitted to the Hutchinson Memorial Clinic obstetric service on February 10, 1933, with a history of amenorrhea of five and a half months' duration. She had no untoward symptoms on admission. The family history was essentially negative except for the fact that the

father died at 42 years of age from diabetes mellitus, and the mother at 40 of a disease of the heart. No history was obtained of abortion, stillbirth or miscarriage in patient's mother. On February 13, 1933, Wassermann and precipitin reactions were negative.

The patient had a delivery of a full term still-born child on May 24, 1928. According to an older record the Wassermann at that time was negative. She had a full term eight pound female on January 26, 1932. This baby died at two months of age from nephritis. The Wassermann report was not found on this child. The prenatal period was uneventful except for severe headaches and edema of feet. She had a small ulcer on the upper, anterior third of the right leg during April, 1933, that healed with silver nitrate 20 per cent application. She delivered a full term viable female baby on June 30, 1933, with no apparent difficulty, and a normal puerperal period.

On March 3, 1933, and on April 10, 1933, the Wassermann and precipitin tests were negative.

The patient was readmitted on February 7, 1938, in the eleventh week of her fourth pregnancy. This pregnancy was uneventful except for the severe edema, visual disturbance, and headache. She delivered by spontaneous delivery an apparently normal male child on September 5, 1938, with an uncomplicated postpartal recovery. On February 8, 1938, Wassermann and precipitin reactions were negative. On November 7, 1938, the Wassermann was negative and the precipitin was moderately positive.

The last admission of this patient to our obstetric service was on August 7, 1939. On admission she was found to be three or three and a half months pregnant, and was still showing the edema, headache, and visual disturbance, which occurred with all of her pregnancies. The youngest child was found to have a plus Wassermann on November 7, 1938, and was receiving antiluetic treatment at the time of the mother's admission to the obstetric clinic. On August 7, 8 and 28, the Wassermann and precipitin reactions were negative. On September 7, 1939, the spinal fluid showed a negative Wassermann, a gold curve of 010000000 and no cells.

Because of the baby being luetic the patient was given a provocative Wassermann. Mapharsen 0.04 gram was given on August 23, 1939. Wassermanns were done on August 28, September 2, and on September 6 a spinal Wassermann was done. The entire series of tests was negative serologically.

On September 7, 1939, globulin was negative, Wassermann was negative and differential was 010000000.

This patient was placed on mixed treatment on October 12, 1939. The mixed treatment was discontinued and mapharsen 0.03 gram and bismuth salicylate 0.13 gram was given on October 25 and October 31.

*Pregnancy with Intact Hymen* (Dr. E. L. King):

This patient was first seen in the Charity Hospital Clinic when she was about six months pregnant. Her mentality was of a very low order, so that she could not give a history as to the duration of pregnancy. She had no idea as to her age, and we could not obtain from her any data as to whether she had ever menstruated. She could not be made to understand what we were trying to discover. We did elicit a history of two attempts at sexual intercourse. When examined, a normal, developing pregnancy of about six months was found, and the fetal heart was audible. An attempt at vaginal examination showed that the hymen was imperforate, except for a small opening just admitting a hair pin in its anterior aspect just beneath the urethra.

It was apparent that impregnation had occurred through this small opening. Evidently the vaginal secretion must have been made alkaline by the constant outpouring of the cervical secretion into the vagina. Normally, of course, the vaginal secretion is acid, and is inimical to the spermatozoa.

The patient was admitted to the Tulane gynecologic service, our idea being that the hymen should be excised in ample time for the incision to heal before delivery should occur. However, those in charge of the service felt it was best not to do this, so she was discharged. She was admitted to our obstetric service at Charity Hospital a few days before the expected date of delivery, which was calculated solely from the size of the uterus. She went into labor, and the head was brought down on to the perineum without particular difficulty. The hymen was incised by Dr. W. K. Gauthier, the resident, and the baby was delivered by low forceps and episiotomy. The episiotomy was repaired. The hymeneal membrane was found to be retracted to such an extent that an incision was not necessary. The repairs were by first intention, and convalescence was uneventful.

*A Case of Postpartal Hemorrhage* (Dr. M. C. Steiner—Read by Dr. Glass): The patient, Mrs. A. W. H., came to the surgery clinic, April 27, 1938, with complaint of vomiting and epigastric distress. She had suffered from the latter for twenty years. She states that after drinking alcohol, of which she is quite a frequent user, she would vomit blood. She has passed bright red stools at times during the past few years. She was diagnosed as chronic cholecystitis for which she had received treatment.

The patient failed to return for treatment and was next seen in July of 1938 complaining of having missed two menstrual periods and with pain in the left lower quadrant. Examination in the gynecologic department revealed an enlarged uterus which was diagnosed as pregnancy but to be confirmed in a month or six weeks. She had an appointment with the gynecologic department

for August 29, but on August 28 she had a slight brownish discharge and felt badly. On getting out of bed to take a drink, she fainted and was taken to Charity Hospital where she stayed for eighteen days, during which time she received transfusion and infusion and "a shot in the heart." The diagnosis was toxemia of pregnancy. On November 28, she was examined and a viable fetus of about six months' duration was found. She was then transferred to an obstetric ward.

Her history reveals tubal pregnancy with abortion, 1926; a miscarriage from a fall, 1930; a miscarriage followed by blood poisoning, 1931; a dilatation and curettage for flooding, 1934. Her last menstrual period was in August, 1938, followed by labor pains in October when she was taken to Charity Hospital, packed and discharged.

On March 30, 1939, she went into labor, remained in labor for nine hours under sedatives, then ceased labor pains. Labor was induced at 4 a. m. Membranes were ruptured at 4:45 p. m. because of a marginal placenta previa. She was delivered at 5:45 p. m. There was a slight tearing of the cervix which was repaired. It was noticed, however, that there was no clot. The blood seemed to be coming from the uterus. This continued profusely even after the repair of the lacerations. The uterus was packed. Her pulse was rapid but she was not in shock. She was sent to her room where she was given an infusion of 10 per cent glucose,  $\frac{1}{4}$  grain of morphine and routine postpartal care. This was at about six o'clock. At seven-thirty it was noticed that she had bled sufficiently to cover a very large area on the bed and that she was definitely in shock. She was given pituitrin, intravenous treatment and returned to the operating room. The packing was taken out and the patient expired before she could be given a transfusion.

Autopsy on this patient was uninformative other than that there was no clotting of the blood even on the packing in the uterus.

This condition is generally spoken of as postpartal hemorrhage in which the blood has no clotting power. The patient gave no previous history of hemorrhages of any kind, and this was the unusual feature of the case. There was no clotting of collected blood even at the end of six or eight hours. Unfortunately, only one blood count was run on this patient on her first admission to the clinic. At that time she had 75 per cent hemoglobin and 4,000,000 red blood cells.

Dr. King, in commenting on the case, reported that he had seen only one or two cases in his practice; Dr. Caire said he had seen three, counting this one. It seems that there is little to be done for these patients other than transfusions. There may be hope in the reports coming out on the new anti-coagulates, especially vitamin K which may be of value in this condition.

*An Unusual Death Following Delivery* (Dr. A. Caire, Jr.): As an introduction to this program, I would like to state that the obstetric service started in this institution in the fall of 1933 and up to November 1, 1939, has delivered in their private homes 2557 pregnant women with only one maternal death. This was a death due to pulmonary embolism occurring one hour and a half after delivery. We hospitalize all of our seriously ill patients, which, during this time, amounted to approximately 252 cases. Of these, there were five maternal deaths. My presentation will take up for consideration one of these latter cases.

Mrs. A. K. D., 31 years old, white, was admitted to our clinic September 27, 1937. The history, both familial and personal, is entirely negative, with the exception that she was chronically constipated, had a slight amount of nausea, which lasted only three weeks, in the early part of this pregnancy, which is the first. The physical examination revealed a somewhat thin and apparently nervous white female, who was slightly deaf. The oral hygiene was poor, but otherwise the physical examination in general was negative. The clinical laboratory examination revealed a mild amount of anemia; the Wassermann reaction was negative, urinalysis was also negative, as were the examinations of several vaginal smears and feces.

The patient had an uneventful antepartum course from the date of admission until January 17, 1938, when she complained of visual disturbances, edema of the lower extremities, and a slight cold. The blood pressure was normal and the urinalysis was negative. She was referred to the medical clinic for the cold, which was not considered serious enough to warrant any medication; the only positive sign of physical disease that was elicited at this time was a tachycardia. From this time on, she was seen every week, and her blood pressure rose from 112 to 140 systolic, and on February 24, 1938, the urine was found to contain albumin. The weight gain during the pregnancy was 26 pounds.

The patient was hospitalized at Touro on February 25, 1938, with a diagnosis of pre-eclamptic toxemia. Her blood pressure was 140 over 92, and the urine contained 4.5 per cent albumin, with some few casts. She was put on a pre-eclamptic diet and sedation for three days. During this time the albumin did not decrease and the blood pressure remained about the same, so that on the morning of February 28, 1938, it was decided to induce labor. The method of induction was surgical, as it has been our experience that in pre-eclamptics medical inductions fail in more than 80 per cent of cases. In attempting to insert a Voorhies bag, the membranes were accidentally ruptured. As the cervix was soft and about 2 cm. dilated, it was decided not to insert the bag after the membranes had been ruptured.

The patient went into active labor about sixteen hours later, and delivered within eight hours after the spontaneous onset of labor. One hour and a quarter before the labor terminated, the patient had an eclamptic convulsion, which lasted about ten minutes. As she was at this time scrubbed up and on the delivery table, the convulsion was controlled by the administration of ethylene and oxygen. The child was delivered by low forceps and episiotomy and was stillborn, no fetal heart tones being discernible and no attempts at respiration being made. During the last six to eight hours of labor, the fetal heart tones had been found to be between 180 and 200. This record was noted on the intern's progress notes, but I seriously doubt its authenticity, because I do not believe anyone can count that fast. In view of the fact that the patient's baby seemed to have been dead for some time when it was actually delivered, I seriously doubt if any fetal heart tones were heard during the last few hours of labor.

Immediately after delivery, the patient went into profound shock, which was not due to hemorrhage. The quick response to the accepted methods of treatment for shock, namely, elevation of foot of bed, morphine sulphate and glucose and saline intravenously, made us feel that she was entirely out of danger within two hours. For the next four days, the patient had an uneventful convalescence, the blood pressure dropping down to normal limits and the albuminuria decreasing. On the morning of the fifth postpartal day, she had a chill and a rising temperature up to 104°. This was thought to be due to a subinvolution and a genito-urinary tract infection. The next day she started coughing a little and by the seventh day postpartum, a positive diagnosis of bronchopneumonia was made. From this date, March 7, 1938, until the date she was sent home from the hospital, April 6, 1938, the patient ran a temperature from normal in the early morning to between 101° and 104° in the late evening, every day. Notwithstanding the fact that the patient complained constantly of pain in her chest and was almost incessantly coughing, the medical consultants thought that the patient had completely recovered from the pneumonia and sent her home. During her stay in the hospital, the patient had received four whole blood transfusions and was given prontosil *ad lib*. After two weeks postpartum, the albumin disappeared from her urine, but even on the date of her discharge, the urine still contained numerous pus cells and bacteria. Several blood cultures were made during this time, all of which were negative.

She was seen several times at home during the next few weeks and seemed constantly to be going downhill. It was almost impossible to convince her that it was necessary for her to return to the hospital for further treatment. And it was not until May 18, 1938, after having brought her up here to our clinic and having had a chest plate

made, which revealed a marked amount of pleurisy with effusion, that we were able to convince her of her dangerous condition.

The patient was admitted to Touro on May 19, 1938, and had bronchial pneumonia and pyelitis as postpartal complications. She was discharged from the hospital April 6, 1938. Since that time, she has been very weak and has an incessant dry cough, but no expectoration or hemoptysis. She has continuously lost weight, experiences quite a great deal of shortness of breath, has fever frequently in the afternoons, and occasionally night sweats. She complains constantly of pain in the left chest, particularly when inhaling, and cannot lie on her left side. Her appetite is very poor, and she complains of frequency of urination. The physical examination reveals a marked dulness and diminution of breath sounds over the entire left chest. The heart seems to be displaced towards the right. A blood count shows profound secondary anemia.

Two days after admission, a thoracentesis was done, and about 200 c. c. of straw colored fluid was removed. The thoracentesis was repeated three more times while the patient was in the hospital; as much as 1200 c. c. of fluid being removed on at least two occasions. After the first thoracentesis, the patient started running higher fever; whereas before it never reached quite 100° in the afternoon, from this time on it was practically over 101° every day. The pleural effusion was cultured without any success; no organisms would grow in any media, several times injections into guinea pigs were made without success; smears and cultures all proved negative for tubercle bacilli. She was discharged June 16, 1938, as being improved.

The patient was readmitted July 15, 1938, because of excruciating pain which started July 4, 1938, and became steadily worse until admission. A diagnosis of pleurisy with effusion was made, and on July 22, 1938, another thoracentesis was done, only 3 c. c. of fluid being obtained at this time. This fluid was cultured and reported to be contaminated with the hemolytic streptococcus. Upon my insistence, a surgical consultation was asked for, and at last a correct diagnosis of pyopneumothorax was made. Five whole blood transfusions were given within the next seven days and patient was prepared for surgical intervention on July 31, 1938. In the early morning of August 1, 1938, the patient had a sudden cardiac collapse and immediate death. This was exactly three hours before the operation for pyopneumothorax was to be done.

I have attached to this report the autopsy findings on both mother and baby. It is very unusual, unfortunately, for us to obtain autopsies on both patients under these circumstances. The autopsies

are condensed for your convenience and are not entirely complete; only essential sections of the protocols being herewith submitted.

*Autopsy of Baby, Stillborn March 1, 1938 (Touro)—Brain and Calvarium:* The calvarium is removed in the usual flower petal manner and the brain exposed to view. The falx cerebri shows no abnormalities. The right tentorium cerebelli shows no abnormality but the left tentorium cerebelli shows a well defined tear from which blood is actively oozing. A large amount of blood is present over the left cerebellum and base, in the form of a fairly large hematoma, located intracranially. The brain is removed and examined and it presents an extensive amount of softening and falls apart with no difficulty.

#### *Anatomic Diagnoses*

1. Stillborn.
2. Tear of left tentorium cerebelli.
3. Intracranial hemorrhage.
4. Marked degeneration of brain.

#### *Microscopic Findings*

*Adrenal:* Hydropic and parenchymatous degeneration of cortex. Organ is generally edematous.

*Spleen:* Acute exudative splenitis.

*Pancreas:* Organ is generally edematous.

*Kidneys:* Acute tubular nephritis, toxic terminal. Organ is generally edematous. Slight chronic interstitial nephritis.

*Liver:* Rather widespread parenchymatous and fatty degeneration. Chronic passive congestion, associated with some areas of extensive degeneration around the central veins.

*Mesenteric Lymph Nodes:* Inflammatory hyperplasia.

#### *Autopsy of Mrs. A. K. D.—Died August 1, 1938 (Touro)—Anatomic Diagnoses*

1. Encapsulated empyema, postpneumonic, left side.
2. Broncho-pleural fistula, left lower lobe.
3. Atelectasis of left lung.
4. Dilatation of the heart.
5. Fibrinous and fibrous pleuritis, left.
6. Edema and congestion of the right lung.
7. Passive congestion of the liver, spleen and kidneys.
8. Anomaly of the left ureter, and renal vessels.
9. Previous appendectomy.
10. Acute cystitis.
11. Emaciation.
12. Mesenteric and periportal lymphadenitis.
13. Dextrocardia, mechanical.
14. Retrosternal tumor. (Inflammatory reaction).
15. Chronic endometritis and cervicitis.
16. Patent foramen ovale, well guarded by endocardial flap.
17. Calcified leiomyoma free in uterorectal fold.

18. Chronic passive congestion of liver.

*Culture from spleen:* Gram negative bacillus.

*Culture from pleural abscess:* Gram negative bacillus.

*Culture from pleural abscess:* Gram negative bacillus; gram positive diplococcus.

#### Microscopic Findings

*Lungs:* Edema and emphysema; anthracosis; other areas show atelectasis; acute pleuritis.

*Kidneys:* Extensive tubular and parenchymatous degeneration, toxic terminal, involving the tubules and Malpighian corpuscles.

*Heart:* Fibers are widely separated by serum and show extensive fatty degeneration; brown atrophy.

*Liver:* Chronic passive congestion, marked. Columns of hepatic cells are extremely distorted and narrowed; many of the nuclei show pyknosis.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

- December 4. Board of Directors, Orleans Parish Medical Society, 8 p. m.  
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
- December 5. Fourteenth Stanford E. Chaillé Memorial Oration, Orleans Parish Medical Society, 8 p. m.  
Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.
- December 6. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 8 p. m.  
Hutchinson Memorial Clinic Staff, 8 p. m.  
Mercy Hospital Staff, 8 p. m.
- December 7. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- December 9. Election of Officers, 1940, Orleans Parish Medical Society. Balloting between the hours of 10 a. m. and 12 noon; 2 to 5 p. m., and 7 to 8:30 p. m. in the Domicile of the Society, 1430 Tulane Avenue.
- December 11. Orleans Parish Medical Society, 8 p. m.
- December 12. Eye, Ear, Nose and Throat Club, 8 p. m.
- December 13. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Touro Infirmary Staff, 8 p. m.
- December 15. I. C. R. R. Hospital Staff, 12 noon.  
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- December 18. Hotel Dieu Staff, 8 p. m.
- December 19. Charity Hospital Medical Staff, 8 p. m.
- December 20. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
- December 21. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

December 26. Baptist Hospital Staff, 8 p. m.

December 27. French Hospital Staff, 8 p. m.

December 28. L. S. U. Faculty Club, 8 p. m.

During the month of November the Society held its regular monthly meeting on Monday, November 13. The following scientific program was presented:

#### SYMPOSIUM ON ACUTE APPENDICITIS

The Aims of the Appendicitis Committee of the Surgical Section of the Southern Medical Association

By.....Dr. Isidore Cohn

The Diagnosis of Acute Appendicitis

By.....Dr. H. Reichard Kahle

Acute Appendicitis: Management of Suspected Cases

By.....Dr. Samuel Karlin

Age Factors in Acute Appendicitis

By.....Dr. Charles J. Miangolarra

At this meeting the following slates of officers for 1940 were handed in to the Secretary:

#### PRESIDENT:

Dr. Gilbert C. Anderson.

Endorsed by Drs. H. B. Alsobrook, Dean H. Echols, Edwin H. Lawson, Neal Owens, and Edwin L. Zander.

#### FIRST VICE-PRESIDENT:

Dr. Lucian H. Landry.

Endorsed by Drs. Mims Gage and Ambrose H. Storck.

Dr. Edmund L. Leckert.

Endorsed by Drs. J. E. Brierre, Wm. G. Troeschler and Edwin L. Zander.

#### SECOND VICE-PRESIDENT:

Dr. Arthur Caire, Jr.

Endorsed by Drs. Philip J. Bayon and Mims Gage.

Dr. Andrew V. Friedrichs.

Endorsed by Drs. H. B. Alsobrook, Roy B. Harrison and D. J. Murphy.



## THIRD VICE-PRESIDENT:

Dr. Daniel J. Murphy.

Endorsed by Drs. H. B. Alsobrook, Frank J. Chalaron and Eugene H. Countiss.

Dr. Eugene B. Vickery.

Endorsed by Drs. W. E. Kittredge and John C. Weed.

## SECRETARY:

Dr. Rawley M. Penick.

Endorsed by Drs. Michael DeBaakey and Ambrose H. Storck.

Dr. Edwin L. Zander.

Endorsed by Drs. Frank J. Chalaron, C. Grenes Cole and E. L. Leckert.

## TREASURER:

Dr. W. Rogers Brewster.

Endorsed by Drs. Conrad G. Collins and John C. Weed.

Dr. Edwin H. Lawson.

Endorsed by Drs. H. B. Alsobrook, L. C. Chamberlain and C. J. Vedrenne.

## LIBRARIAN:

Dr. Donovan C. Browne.

Endorsed by Drs. H. B. Alsobrook, Conrad G. Collins, Dean H. Echols and Edwin H. Lawson.

## ADDITIONAL MEMBERS OF BOARD:

Dr. H. B. Alsobrook.

Endorsed by Drs. C. Grenes Cole, E. R. Guidry and E. J. Richard.

Dr. Oscar W. Bethea.

Endorsed by Drs. Rufus H. Alldredge and Michael DeBaakey.

Dr. Max Green.

Endorsed by Drs. Frank J. Chalaron, Roy B. Harrison and Edwin L. Zander.

Dr. Cassius L. Peacock.

Endorsed by Drs. Frank J. Chalaron, Joseph P. Palermo and C. J. Vedrenne.

Dr. H. Vernon Sims.

Endorsed by Drs. Clyde Brooks and W. E. Kittredge.

Election of these officers will take place Saturday, December 9, 1939. Balloting will take place between the hours of 10 a. m. to 12 noon; 2 to 5 p. m.; and 7 to 8:30 p. m. in the Domicile of the Society, 1430 Tulane Avenue. ONLY MEMBERS IN GOOD STANDING WILL BE ELIGIBLE TO VOTE.

At the November 13 meeting the following delegates and alternates of the Louisiana State Medical Society were elected. All delegates and alternates were elected for a term of two years with the exception of the President who serves during his term of office only:

## DELEGATES

Dr. Gilbert C. Anderson, President  
 Dr. Edgar Burns  
 Dr. Edward L. King  
 Dr. Emmett Irwin

Dr. Edwin H. Lawson

Dr. M. T. Van Studdiford

Dr. Donovan C. Browne

Dr. Mims Gage

Dr. Guy A. Caldwell

Dr. Randolph Lyons

Dr. Cassius L. Peacock

Dr. B. J. DeLaureal

Dr. E. L. Leckert

Dr. Curtis H. Tyrone

## ALTERNATES

Dr. John J. Archinard

Dr. L. C. Chamberlain

Dr. Charles J. Miangolarra

Dr. Frank Chetta

Dr. Lucian H. Landry

Dr. H. B. Alsobrook

Dr. Lucien A. Fortier

Dr. I. W. Kaplan

Dr. Theo. F. Kirn

Dr. J. P. Palermo

Dr. James T. Nix

Dr. Sidney M. Copland

Dr. Nathan H. Polmer

Dr. George D. Feldner

A special meeting of the Society was called for Friday, November 17, 1939, to hear Dr. Jenő Pólya, Professor of Surgery at the University of Budapest. The subject of his talk was "The Reestablishment of the Gastric Passage after Resection."

Professor Pólya came to this country to attend the meeting of the American College of Surgeons where he presented a paper and was given an honorary degree. He is Surgeon-in-Chief of the Pólya Pavilion of the Saint Stephen's Hospital, Budapest, and is a lecturer at the University of Budapest on surgery of the abdomen and on topographic anatomy.

The following doctors were elected to membership: ACTIVE: Dr. Edward deS. Matthews; INTERN: Drs. Hartwig M. Adler, Philip J. Begley, William K. Gauthier, Michael C. Kolczun, Marion E. Kopfler, J. D. Magee, Jr., Harry E. Nelson, William Trachtenberg, William W. Trice, Jr., Arthur Vandergrift, Jr., and Robert A. Wise.

At the recent quarterly executive meeting of the Tuberculosis and Public Health Association of Louisiana, Dr. I. L. Robbins was appointed Chairman of the Committee on Cooperation with the Orleans Parish Medical Society; Dr. Julius Lane Wilson, Chairman of the College Health Activities Committee and Dr. Sydney Jacobs was reappointed Chairman of the Early Diagnosis Campaign Committee.

Dr. Rupert E. Arnell has been informed of his appointment to the Louisiana Planning Committee

of the White House Conference on Children in a Democracy.

Dr. Albert E. Casey has been elected to active membership in the American Association of University Professors.

The following members attended the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago, October 9-13: Drs. Charles A. Bahn, Henry Blum, William B. Clark, Charles L. Cox, Val H. Fuchs, George Haik, John J. Irwin, Monte F. Meyer, George J. Taquino, William A. Wagner and E. Garland Walls.

Dr. Ansel Caine attended the meeting of the Anesthetic Travel Club in Hartford, Connecticut, and New York, October 9-14. He also attended the Association of Anesthetists of United States and Canada which met in Philadelphia, October 16-20.

Dr. Charles S. Holbrook presided at the meeting of the Southern Psychiatric Association held in Louisville, Kentucky, October 9-10.

Dr. W. H. Perkins was elected Vice-President of the Southern Tuberculosis Conference for 1939-40.

Drs. Elizabeth Bass, Roy E. de la Houssaye, George J. DeReyna, Philip C. DeVerges, Edwin A. Socola and Haidee Weeks, members of the Medical Milk Commission, made an inspection tour and had a picnic lunch at Taft, Louisiana, on Sunday, October 22.

Dr. George A. Mayer gave lectures in Shreveport, Alexandria and Monroe during the week of October 23.

Drs. C. C. Bass, B. I. Burns, Maxwell E. Lapham and John R. Schenken attended the meeting of the Association of American Medical Colleges in Cincinnati, Ohio, October 23 and 24.

Dr. Guy A. Caldwell addressed the National Society for Crippled Children in Dallas, Texas, October 23.

Dr. Shirley C. Lyons attended the meeting of the Residents and Ex-residents of the Mayo Clinic at Rochester, Minnesota, October 25-27. Dr. Lyons also attended the meeting of the Inter-state Post-graduate Medical Association of North America in Chicago, October 30-November 3.

Drs. Gilbert C. Anderson, Michael E. DeBakey, Mims Gage and Hugh Page Newbill addressed the sessions of the Academy of Neurosurgery which

were held at Charity Hospital, October 27-28. Dr. Dean H. Echols is President of the Academy.

Attending the meeting of the Central Association of Obstetricians and Gynecologists in Kansas City, November 2-4, were Drs. Rupert E. Arnell, Thomas B. Sellers, Earl C. Smith and Edwin L. Zander. Dr. Sellers was elected President of this organization for the year 1941.

Dr. James K. Howles attended the American Academy of Dermatology which met in Philadelphia, November 6-8.

Dr. J. H. Musser presented a paper on "Abdominal Pain" at the meeting of the Inter-state Post-graduate Medical Association of North America in Chicago, October 30.

Dr. Alton Ochsner presented a paper at the International Assembly of the Inter-State Post-graduate Medical Association of North America in Chicago, November 3. Following this Dr. Ochsner attended several other meetings and later attended a joint meeting of the Board of Trustees of the American Medical Association and the Board of Regents of the American College of Surgeons in Chicago, November 16.

Dr. Edwin A. Socola attended the meeting of the American Academy of Pediatrics held in Cincinnati, November 14-16.

Drs. John H. Musser and P. T. Talbot attended the Conference of Secretaries and Editors of the American Medical Association in Chicago, November 17 and 18.

#### TREASURER'S REPORT

Actual Book Balance 9/30/39.....	\$3,665.62
October Credits .....	241.47
Total credits .....	\$3,907.09
October expenditures .....	546.84
Actual Book Balance 10/31/39.....	\$3,360.25

#### LIBRARIAN'S REPORT

During October, 61 volumes have been added to the Library. Of these 23 were received by gift, 14 by binding, 1 by purchase and 23 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is made below.

Our records show that 1,197 volumes were loaned to physicians during the month. An additional 1,065 were loaned to students for overnight use, giving us a total circulation of 2,262, the largest in the history of the Library. These figures do not include the great use of books and journals within the Reading Rooms.

Members of the staff have collected material on the following subjects at the request of physicians:

Urticaria.  
Preparation of Hasting's stain.  
Heredity.  
Friedrich Wilhelm Alexander von Humboldt.  
Lead poisoning.  
Pleural effort.  
Physiology of the emotions.  
Suppurative parotitis.  
Socialized medicine.  
Gila monster poisoning.  
Psychoses of menstruation.

## NEW BOOKS

Rockefeller Foundation: Annual Report, 1938.  
Rockefeller Foundation: International Health Board Annual Report, 1938.  
Institute Butanan: Memorias, v. 11-12, 1937-39.  
Rankin, F. W.: Cancer of the Colon and Rectum, 1939.  
Hayden, E. P.: Rectum and Colon, 1939.  
Treves, Sir Frederick: Surgical Applied Anatomy, 1939.  
Rappleye, W. C. ed.: Epidemic Encephalitis, 1939.  
May, C. H.: Manual of the Diseases of the Eye, 1939.  
Adams, Francis, tr.: Genuine Works of Hippocrates, 1939.  
Noyes, A. P.: Modern Clinical Psychiatry, 1939.  
Wolf, William: Endocrinology in Modern Practice, 1939.  
Collens, W. S.: Peripheral Vascular Diseases, 1939.  
LeComte, R. M.: Manual of Urology, 1939.  
Goepf, R. M.: Medical State Board Questions and Answers, 1938.

Sutton, R. L.: Diseases of the Skin, 1939.  
Heffron, Roderick: Pneumonia, 1939.  
Huddleson, I. F.: Brucellosis in Man and Animals, 1939.  
American Association for the Study of the Feeble-minded: Proceedings, v. 56, 1932.  
American Psychoanalytic Association: Bulletin, v. 1, 1937-38.  
American Public Health Association: Southern Branch Transactions, v. 6, 1937.  
U. S. Navy: Annual Report of the Surgeon-General, 1936.  
Irons, E. E.: Last Illness of Sir Joshua Reynolds, 1939.  
Sinai, Nathan: Medical Relief Administration, 1939.  
Stevens, F. L.: The Microthyriaceae, 1939.  
Oxford Medicine. v. 3 pt. 3, 1939.  
Baumgartner, Leona: John Howard, 1939.  
Smith, S. C.: Heart Patients, 1939.  
McNeill, Clyde: Roentgen Technique, 1939.  
Engel, William: Sensible Dieting, 1939.  
Richards, L. G.: Otolaryngology, 1939.  
Scherf, David: Cardiovascular Diseases, 1939.  
Bauer, W. W.: Health Education of the Public, 1937.  
Liljencrantz, Eric: Cancer Handbook, 1939.  
Brickel, A. C. J.: Surgical Treatment of Hand and Forearm Infections, 1939.  
Fishbein, Morris: Do You Want to Become a Doctor? 1939.  
Smith, F. C.: Proctology for the General Practitioner, 1939.  
Tobey, J. A.: Public Health Law, 1939.

Gilbert C. Anderson, M. D.,  
Secretary.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

## CALENDAR

New Orleans Graduate Medical Assembly	February 26-29, 1940	New Orleans.
Louisiana State Medical Society	April 22-24, 1940	New Orleans.

## PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

THE PLATFORM OF THE AMERICAN  
MEDICAL ASSOCIATION

The following are the tenets of the American Medical Association. The Association advocates eight planks. Through its Board of Trustees it presents the following planks, which at various times have been recommended by the House of

Delegates, and are reprinted below, together with explanatory paragraphs concerning each of these statements of principles.

1. *The establishment of an agency of federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.*

Today the medical and health functions of the United States are divided among a multiplicity of departments, bureaus, and federal agencies. Thus, the United States Public Health Service is in the Federal Security department; the Maternal and Child Welfare Bureaus in the Department of Labor; the Food and Drugs administration in the Department of Agriculture; the Veterans' Administration and many other medical functions are separate bureaus of the government. The WPA, CCC, and PWA are concerned with a similarity of efforts in the field of preventive medicine. The Federal Works Administration and the Federal Housing Administration also have some medical functions.

Since 1875, the American Medical Association has urged the establishment of a single agency in the federal government under which all such functions could be correlated in the interest of efficiency, the avoidance of duplication, and a saving of vast sums of money. Such a federal health agency, with a secretary in the cabinet, or a commission of five or seven members, including competent physicians, would be able to administer the medical and health affairs of the government with far more efficiency than is now done.

2. *The allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health and the care of the sick on proof of such need.*

The physicians of the United States have given freely of their time and of their funds for the care of the sick. Their contributions to free medical service amount to at least \$1,000,000 a day. The physicians of this country have urged that every person needing medical care be provided with such care. They have urged also the allotment of funds for campaigns against maternal mortality, against venereal disease, and for the investigation and control of cancer. The medical profession does not oppose appropriations by Congress of funds for medical purposes. It feels, however, that in many instances states have sought aid and appropriations for such functions, without any actual need on the part of the state, in order to secure such federal funds as might be available. It has also been impossible, under present technics, to meet actual needs which might exist in certain states with low per capita incomes, with needs far beyond those of wealthier states, in which vast sums are spent.

It is proposed here simply that Congress make available such funds as can be made available for health purposes; that these funds be administered by the federal health agency, mentioned in the first plank of this platform, and that the funds be allotted on proof of actual need to the federal health agency, when that need be for the prevention of disease, for the promotion of health, or for the care of the sick.

3. *The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.*

Obviously if federal funds are made available to the individual states for the purposes mentioned in the second plank of this platform, there might well be a lessened tendency in many communities to devote the community's funds for the purpose, and, in effect, to demand that the federal government take over the problem of the care of the sick. Hence, it is suggested that communities do their utmost to meet such needs with funds locally available before bringing their need to the federal health agency, and that the federal health agency determine whether or not the community has done its utmost to meet such need before allotting federal funds for the purpose.

4. *The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.*

The medical profession is not static. It wishes to extend preventive medical service to all of the people within the funds available for such a purpose. Obviously, this will require not only a federal health agency which may make suggestions and initiate plans, but also a mechanism in each community for the actual expansion of preventive medical service and for the proper expenditure of funds developed both locally and federally. In the development of new legislation such mechanism may be suitably outlined.

5. *The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.*

The medical profession does not yield to any other group in this country in its desire to extend medical care to all of those unable to provide themselves with medical service. The American Medical Association through its House of Delegates has already recognized the possible existence of a small group of persons able to provide themselves with the necessities of life commonly recognized as standard in their own communities, but not capable of meeting a medical emergency. It is recognized, however, that only persons of the same community fully familiar with the circumstances can determine the number of people who come properly under such classification and that only persons in actual contact with such instances are capable of administering suitably and efficiently the medical care that may be required. Hence it is the platform of the American Medical Association that medical care be provided for the indigent and the medically indigent in every community but that local funds to be first utilized and that local agencies determine the nature of the need and control the expenditure of such funds as may be developed either in the community or by the federal government.

6. *In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.*

In the so-called National Health Program it is asserted that one-half the counties of the United States are without suitable hospitals, and vast sums are requested for the building of new hospitals. In contrast, reputable agencies within the medical profession assert that there are only 13 counties more than 30 miles removed from a suitable hospital and that in 8 of those 13 counties there are five people per square mile. In the United States today the percentage of hospital beds per 1,000 of population is higher than that of any other country in the world. This fact is completely ignored by those who would indulge in a program for the building of great numbers of new hospitals.

Moreover, it seems to be taken for granted that hospital building has languished in recent years, whereas considerable numbers of hospitals have been built with federal funds by various state agencies and also by the PWA, the WPA and by the Federal Works Administration.

Analyses may indicate that in many instances such hospitals were built without adequate study as to the need which existed or as to the possible efficient functioning once it was erected. Moreover, there is evidence that in recent years many of the hospitals of the United States known as non-profit voluntary hospitals have had a considerable lack of occupancy due no doubt to the financial situation in considerable part. It seems logical to suggest then that such federal funds as may be available be utilized in providing the needy sick with hospitalization in these well established existing institutions before any attempt is made to indulge in a vast building program with new hospitals. In this point of view the American College of Surgeons, the American Hospital Association, the Catholic Hospital Association, the Protestant Hospital Association and practically every other interested voluntary body agree.

Again it has been argued that the demands for medical care in some sections of the country might require the importation of considerable numbers of physicians or the transportation of numbers of physicians in the areas in which they now are to other areas. In this connection it would seem to be obvious that a change in the economic status of the communities concerned would result promptly in the presence of physicians who might be seeking locations. The utilization of existing qualified facilities would be far more economical than any attempt to develop new facilities.

7. *The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.*

In the United States today our sickness and death rates are lower than those of any great country in the world. This fact was recognized by the President of the United States when he sent the National Health Program to the Congress for careful study. The President emphasized that a low death rate may not mean much to a man who happens to be dying at the time of tuberculosis. The medical profession recognizes the importance of doing everything possible to prevent every unnecessary death. At the same time it has not been established by any available evidence that a change in the system of medical practice which would substitute salaried government doctors for the private practitioner or which would make the private practitioner subject to the control of public officials would in any way lower sickness and death rates.

There exists, of course, the fact that some persons are unable to obtain medical service in the circumstances in which they live and that others, surrounded by good facilities, do not have the funds available to secure such services. Obviously here again, there is the question of economics as the basis of the difficulty and perhaps lack of organization in distribution of medical service and a failure to utilize new methods for the distribution of costs which might improve the situation.

The medical profession has approved prepayment plans to cover the costs of hospitalization and also prepayment plans on a cash-indemnity basis for meeting the costs of medical care. It continues, however, to feel that the development of the private practice of medicine which has taken place in this country has led to higher standards of medical practice and of medical service than are elsewhere available and that the maintenance of the quality of the service is fundamental in any health program.

8. *Expansion of public health and medical services consistent with the American system of democracy.*

Careful study of the history of the development of medical care in various nations of the world leads to the inevitable conclusion that the introduction of methods such as compulsory sickness insurance, state medicine and similar technics results in a trend toward communism or totalitarianism and away from democracy as the established form of government. The intensification of dependence of the individual on the state for the provision of the necessities of life tends to make the individual more and more the creature of the state rather than to make the state the servant of the citizen. Great leaders of American thought have repeatedly emphasized the fact that liberty is too great a price to pay for security. George Washington said, "He who seeks security through surrender of liberty loses both." Benjamin Franklin said, "They that can give up essential liberty to obtain

a little temporary safety deserve neither liberty nor safety."

In these times when the maintenance of the American democracy seems to be the most important objective for all the people of this country, the people may well consider whether some of the plans and programs that have been offered for changing the nature of medical service are not in effect the first step toward an abandonment of the self-reliance, free will and personal responsibility that must be the basis of a democratic system of government.

#### THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fourth annual meeting of the New Orleans Graduate Medical Assembly, honoring Dr. Rudolph Matas' sixtieth year in active practice, will be held February, 26-29, 1940, at the Roosevelt Hotel. Eighteen eminent speakers from many other leading medical centers will attend the meeting, presenting practical advances which will be of great interest and value to all of the profession. The Assembly is justified in feeling proud of their honor guests.

Dr. Francis M. Rackemann, guest allergist, is Physician to the Massachusetts General Hospital and in charge of the Allergy Clinic. He is also an Associate in Medicine at the Harvard Medical School. Dr. Rackemann is the author of numerous papers on allergy, hay fever, and asthma, including "Allergy, Particularly Asthma and Hay Fever" published by Macmillan in 1931. The topics of Dr. Rackemann's addresses are "Intrinsic Asthma" and "The Pathology of Asthma." The latter topic will be well illustrated by lantern slides, demonstrating the plugging of the bronchi, particularly in patients of the intrinsic group.

The Section on Medicine will be represented by two guest speakers, namely, Dr. Fred M. Smith and Dr. James S. McLester. Dr. Smith is Professor of Theory and Practical Medicine at the State University of Iowa College of Medicine. The titles of his talks are "Cardiac Therapy" and "Diagnosis of Coronary Artery Disease." Dr. McLester was President of the American Medical Association in 1936 and is the author of "Monograph on Diseases of Metabolism" and a textbook on "Nutrition and Diet." His talks at the Assembly will be "The Role of the Vitamins in Human Nutrition" and "Diet in Heart Disease."

Dr. David Preswick Barr is the guest speaker in Endocrinology. Dr. Barr is Busch Professor of Medicine at the Washington University School of Medicine, St. Louis. Dr. Barr has selected as his topics "The Relationship of the Pituitary Gland to the Body as a Whole" and "The Nature and Uses of the Male Sex Hormone."

Dr. Henry W. Woltman, Professor of Neurology and Psychiatry at the University of Minnesota

Graduate School will speak about "Neuritis" and "Headache."

Dr. John A. Toomey, Associate Professor of Pediatrics at the Western Reserve University School of Medicine, Cleveland, will present "Chemotherapy in Acute Infectious and Contagious Diseases" and "Present Status of the Poliomyelitis Problem."

The other speakers and their subjects of discussion will be published in subsequent articles.

#### NATIONAL GASTROENTEROLOGICAL ASSOCIATION

The Louisiana Chapter of the National Gastroenterological Association held its initial meeting of the active season on Thursday, October 26, 1939 at Louisiana State University Medical Center.

A motion picture film recording the behavior of the gallbladder, compliments of the Petrolagar Laboratories, was first on the program followed by a practical and timely paper read by Dr. Julius Bauer, entitled "Nervous Dysfunction of the Rectum." Dr. A. L. Levin demonstrated a series of colored slides of gastric pathology as seen through the gastroscope, which were marvelously colored to depict pathology in natural tissue colors, uncannily differentiating the gastric mucous membrane of the various anatomic areas; *in situ* pictures of various peptic ulcers, from the superficial mucous lesions to perforating types; early and advanced carcinomata; all pictures offering the chance of early diagnosis, with greatly improved chances of relief which will soon be a standard procedure and just as much an adjunct to a complete diagnosis of gastrointestinal function as the other armamentaria.

Interesting cases were presented by Drs. Fasting and Weinberger, all of which excited lively discussions.

#### NEWS ITEMS

A new building for the School of Medicine, University of North Carolina, will be opened with appropriate exercises on Monday, December 4 at Chapel Hill. A list of distinguished educators and physicians will take part in the celebration. The important addresses will be given by Dr. David Riesman, Professor Emeritus of Medicine at the University of Pennsylvania, Dr. G. Canby Robinson of Johns Hopkins University, and Dr. Frank G. Boudreau of the Milbank Memorial Foundation.

Dr. Ambrose H. Storck recently attended the annual meeting of the Surgeons Club in Baltimore and the Clinical Congress of the American College of Surgeons in Philadelphia. He was a guest speaker at the recent meeting of the Tri-state Medical Society at Marshall, Texas, discuss-

ing the recent advances in the management of hyperthyroidism.

Dr. Frank R. Spencer, Boulder, Colorado, was chosen President-elect of the American Academy of Ophthalmology and Otolaryngology at the annual session in Chicago, October 11. He will succeed Dr. Frank E. Brawley, Chicago, when the latter becomes president of the Academy January 1. Dr. Spencer will become president January 1, 1941.

There are vacancies for civilian physicians for service with the Civilian Conservation Corps in this Corps Area. To be eligible for such employment, the applicant must be a member of the Medical Reserve eligible for active duty, promotion, and physically qualified. Rate of pay \$3200 per annum.

From time to time, the journal *Life* prints some very interesting medical information with appropriate pictures. A recent number of this journal describes the work of the Chief Medical Examiner of the City of New York, largely in detecting murder.

#### PHYSICAL EXAMINATION OF INDUSTRIAL WORKERS

The Industrial Commission of Wisconsin has issued a declaration of principles concerning physical examinations in industry. This includes information as to the scope of the examination, including pre-employment and subsequent examination, and discussion of whether or not different types of examinations should be given for different types of employment. This brochure presents rather advanced steps in procedure and may be of interest to those engaged in industrial medicine. Copies may be had from Mr. B. E. Kuechle, Vice-president and Claim Manager of the Employers Mutual Liability Insurance Company of Wausau, Wisconsin.

#### PAY YOUR DOCTOR WEEK

The Journal is in receipt of a notice to the effect that the week of November 27-December 2 will be the second annual "Pay Your Doctor Week." This is certainly a very worth while and meritorious suggestion. We are quite sure all doctors will be heartily in favor of this particular week in spite of the fact that they are celebrating every week in the year for some particular purpose.

#### AMERICAN BOARD OF OPHTHALMOLOGY

The only written examination in 1940 of the American Board of Ophthalmology will be held in various cities throughout the country on March 2. All applications must be received before January

1, 1940. Application blanks may be secured from Dr. John Green, 6830 Waterman Avenue, St. Louis, Missouri.

#### AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The written examination and review of case histories (Part I) for Group B candidates will be held in the various cities of the United States and Canada on Saturday, January 6, 1940, at 2:00 p. m.

#### APPROACHING MEETINGS

The next meeting of the American Association for the Study of Goiter will be held April 15-17, 1940, in Rochester, Minnesota.

The Program Committee expects to meet for the consideration of papers soon after the first of the year. They would, therefore, appreciate having titles submitted as soon as possible, and in order to assist in the choice of papers and in the arrangement of the program a short abstract accompanying the title would be of great help.

S. F. Haines,  
Chairman Program Committee,  
102-110 Second Avenue S. W.,  
Rochester, Minnesota.

#### AMERICAN UROLOGICAL ASSOCIATION

The next annual meeting of the Southeastern Branch of the American Urological Association will be held at the Buena Vista Hotel, in Biloxi, Mississippi, December 8 and 9.

The Society takes this opportunity to extend to the physicians of the Southeast an invitation to attend this meeting. It is the intent and purpose of the Society that its programs shall not only serve its members, but that it shall also be offered as a form of postgraduate course open to all members of the profession in good standing.

On the program will appear such speakers of national prominence as Dr. Charles M. McKenna, of Chicago; Dr. Roy Henlin, of New York; Dr. E. G. Crabtree, of Boston; Dr. Rubin Flocks, of Iowa City; Dr. Roger W. Barnes, of Los Angeles; Dr. Edward N. Cook, of Mayo Clinic; Colonel J. E. Ash, Curator Army Medical Museum, U. S. A., Washington, D. C.

The officers of the United States Chapter of the International College of Surgeons cordially invite all physicians and surgeons in good standing to their Fourth Assembly, to be held in Venice, Florida, February 11-14, 1940. There is no registration fee.

For general information please address Dr. Fred H. Albee, Chairman, 57 West 57th Street, New York City. For information about the presentation of scientific papers or exhibits, query Dr.

Charles H. Arnold, Secretary of the Scientific Assembly, Terminal Building, Lincoln, Nebraska.

#### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending October 14, there were 123 deaths in the City of New Orleans, divided 83 white and 40 negro, of which deaths nine occurred in white and four in negro infants. This was a decrease of 26 deaths from the previous week. For the next week, ending October 21, 131 deaths occurred in the city, divided 86 (two infants) white and 45 (eight infants) negro. Somewhat of an increase in the number of deaths took place among the former citizens of New Orleans, 159 people expiring, of whom 98 were white and 61 negro. In this same week, that of October 28, eight deaths occurred in children under one year of age. During the week which closed November 4, 137 deaths were noted, 84 in the white and 53 in the negro population. Of these, six were white infants and five negro under one year of age. This total of 137 is a reduction of 15 in the death rate from the three-year average for the corresponding week and is an improvement in our city death rate.

#### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the forty-first week of the year, ending October 14, there were reported 179 cases of syphilis, 52 of whooping cough, 49 of pulmonary tuberculosis, 27 of pneumonia, 24 of cancer, 20 of gonorrhoea and 17 of diphtheria. Amongst the unusual diseases reported this week, two cases of typhus fever were listed from East Baton Rouge Parish and one from Orleans Parish. For the next week, which closed October 21, there were noted 102 cases of syphilis, 40 of pulmonary tuberculosis, 34 of pneumonia, 29 of cancer, 28 of diphtheria, 22 of gonorrhoea, 11 of typhoid fever. The typhoid fever cases were well scattered throughout the state. Three cases of typhus fever were reported, one each from Beauregard, Calcasieu and Richland parishes. For the week closing October 28, there were 82 cases of syphilis listed, followed by 34 of whooping cough, 31 of cancer, 25 of influenza, 24 of pulmonary tuberculosis, 21 of diphtheria, 14 of gonorrhoea and 12 of scarlet fever. For this week there were listed four cases of typhus fever originating in St. Tammany, Washington and Lafayette (2) parishes. The diphtheria cases were well below the five-year average and it seems reasonably certain that were all children immunized against this disease before the age of two, the figures would be very much smaller. For the forty-fourth week of the year, syphilis as usual led all other

reported diseases by a very large margin, 302 cases being reported. The following diseases occurred in numbers greater than ten: forty-eight cases of gonorrhoea, 31 of cancer, 30 of pulmonary tuberculosis, 20 of pneumonia, 18 of diphtheria, 11 of whooping cough. It is interesting to note that again there were reported patients who have typhus fever, this time one from Orleans Parish and one from Webster Parish. This is a disease which is either appearing more frequently than in the past, or more likely is being correctly diagnosed. For the week which ended on Armistice Day, there were reported 110 cases of syphilis, 35 of cancer, 32 of pneumonia, 23 of smallpox, 18 of whooping cough, 13 of diphtheria, 12 of pulmonary tuberculosis, 11 of influenza and 10 of malaria. One case of poliomyelitis was listed in Ouachita and two cases of smallpox, both from Union Parish.

#### CORRESPONDENCE

New Orleans Medical and Surgical Journal,  
New Orleans, Louisiana.

Dear Sir:

I am writing you regarding a man who is running around the country buying glasses, especially from oculists, usually giving a check to the amount of \$30.00. This man tries to simulate a farmer and he usually has a notation on the check for corn, cow, and hogs. The name on the check to him is no doubt forged and there is no doubt his endorsement on the back of the check is forged. The man is about five feet nine or ten inches tall, weighs about 155 pounds, light sandy hair, blue eyes, smooth shaven with a ruddy complexion.

Should this man come into your office making an attempt to cash such check as the above description, unless proved to be absolutely authentic, please notify the Sheriff of Nodaway County, Maryville, Missouri or the Sheriff of Grundy County, Trenton, Missouri.

He usually signs his name on the back of the check in a very rough, but plainly legible hand and signs it W. C. Curran, and he usually wishes the difference between the amount of the check and the price of the glasses in cash, but does not call for the glasses.

Should you have any information regarding a man of this description passing checks of the above description, please inform the sheriffs above named, Dr. R. C. Pearson, Maryville, Missouri or myself.

Thanking you, I am

Very truly yours,

Herbert C. Kimberlin, M. D.

#### WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.



First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

2. The Board of Trustees.
3. Judicial Council.
4. Council on Medical Education and Hospitals.
5. Council on Scientific Assembly.
6. The Journal of the American Medical Association.
7. Special Journals.
8. Council on Pharmacy and Chemistry.
9. Council on Physical Therapy.
10. Council on Foods.
11. Council on Industrial Health.
12. Committee on Scientific Exhibit.
13. Bureau of Legal Medicine and Legislation.
14. Bureau of Health Education.
15. Bureau of Investigation.
16. Bureau of Medical Economics.
17. Chemical Laboratory.
18. Library.

#### PLANS FOR THE AUXILIARY, 1939-1940\*

MRS. ROLLO K. PACKARD†  
Chicago

Members and officers of the Woman's Auxiliary should always bear in mind that our organization is an Auxiliary to the American Medical Association. To have a clear and definite understanding of our function, we must first know about the organization of the American Medical Association and how it carries on its work and attains its objectives.

The title, the definition, and the objects of the American Medical Association, given in its Constitution, are as follows:

"The name of this corporation is the American Medical Association; it is a federacy\* of its constituent associations..." (\*Federacy: A federation or union of several states under one central authority, consisting of delegates from each state in matters of general policy but self-governing in local matters. American Dictionary and Cyclopedia.)

"The objects of the Association are to promote the science and art of medicine and the betterment of public health."

Under the provisions of the Constitution and By-Laws of the American Medical Association, its House of Delegates is composed of delegates elected by the constituent associations, meets annually, and is the governing body of the Association. In the interim between meetings of its House of Delegates, the American Medical Association functions through the following organizational set-up:

1. The Officers of the American Medical Association.

\*Taken from the Bulletin of the Woman's Auxiliary to the American Medical Association.

†President of the Woman's Auxiliary to the American Medical Association.

The reports of the Officers, of the Board of Trustees and of the various Councils, Committees and Bureaus are presented to the House of Delegates at its annual meeting for their consideration, acceptance, rejection or alteration. All of these reports and all of the official actions of the House of Delegates are published in the Journal of the American Medical Association. The work is correlated and directed during the year by the Officers and Board of Trustees. While each of the organizational units works independently, they must of necessity, in many instances, function together in order to produce the objectives sought.

The Woman's Auxiliary is organized only to assist in the work of the American Medical Association and under its direction. Its organizational structure is somewhat similar to that of the American Medical Association and its committees must of necessity outline their programs, but likewise of necessity must correlate their interlocking activities. Although there is more or less need for activities of various committees, yet each is essential to the organization. The Officers and members of the Board should attempt to correlate activities in order to meet the needs and the most important problems at any given time.

Auxiliary members must be familiar with the organization of the American Medical Association and with the accomplishments of its various Councils, Committees and Bureaus, if they are to function in the true realm of an Auxiliary and lend the greatest aid as an Auxiliary to the parent body.

#### EDUCATION IN REGARD TO TUBERCULOSIS

This briefly reviews a project undertaken by the Woman's Auxiliary to The Orleans Parish Medical Society.

Through a carefully planned campaign we felt we could make a genuine contribution to lowering the incidence of tuberculosis in New Orleans. This project was approved by our Advisory Council.

We had permission from Dr. Shirley Lyons, President of The Orleans Parish Medical Society, to call for speakers from a bureau appointed by him. The cooperation of the doctors and their response to the numerous calls made upon them deserves a very fine tribute. It was through their excellent talks that groups all over the city were given an intelligent understanding of tuberculosis. They made people conscious of the dangers of this insidious disease and the best methods by which it might be brought under control.

In schools and to employees in industry the following doctors gave talks, many of them illustrated with excellent moving pictures provided by the National Tuberculosis Association: Drs. Robert Strong, Morrell Miller, Robert Bernhard, Jules M. Davidson, Max Hattaway, Willard Wirth, I. L. Robbins, Peter Everett, George Brown, J. H. Musser, Samuel Sternberg, Lewis Levy, Emil Bloch, A. N. Houston, C. J. Miangolarra, Anees Mogabgab, Edwin Tucker, Shirley Lyons, Sidney Jacobs, H. P. Marks, Sims Chapman, Suzanne Schaefer and F. R. Gilpin.

These addresses followed an important program of education which had been carried out in the schools. The plan which follows owes much to the intelligent and well informed counsel of Mrs. John McBryde of the Tuberculosis and Public Health Association of Louisiana and Miss Marietta Rocquet of the Tuberculosis Committee of New Orleans. Superintendent Nicholas Bauer not only approved of our program but also gave us generous assistance in carrying it out.

To each principal, both white and colored, was given a folder containing the best material covering the control of tuberculosis. This presentation was made in conjunction with an address and the showing of a film.

The National Tuberculosis Association publishes an interesting and beautiful series of colored posters suitable to all grades in the schools. These posters are designed to attract the attention of children and make them conscious of the great value of radiant health. Posters were placed in every classroom in the public schools.

We contacted all the parent-teacher groups in the city, public, parochial and private, offering to arrange for them an address by a doctor. We had many acceptances. Whenever possible the lecture was illustrated with a moving picture. We always gave posters to the school.

Knowing that tuberculosis does its most serious damage in early adult life we extended our contacts to groups in the industrial world. The following firms arranged either to have one of our doctors speak to their employees at a meeting or to have their own doctor do so: Godchaux's, Haspel Bros., Inc., D. H. Holmes Co., Famous Sternberg, Inc., Feibleman-Sears, N. O. Public Service, Hausmann, Coleman E. Adler and Sons, Grune-

wald Music Store, Dunlap Sporting Goods, Krauss, Marks Isaacs and Maison Blanche. All of these firms accepted and displayed our posters.

At the annual meeting of the Parent-teacher's Association for the State we were invited to show films. Through the courtesy of Mr. J. G. Ewing and Sons, Motion Picture Equipment Co., we showed them repeatedly there and later in all the public schools equipped with the necessary screens.

The newspapers, recognizing the value of this work, gave it excellent publicity.

This has been an educational campaign not only to direct public attention to the widespread dangers of tuberculosis, but, more important, to emphasize the need for an informed and concerted effort to bring this insidious disease under control.

Members of the committee were Mrs. W. W. Butterworth, Mrs. F. E. LeJeune, Mrs. E. C. Faust, Mrs. W. J. Healy, Mrs. W. H. Harris, Mrs. H. J. Schattenberg, Mrs. J. A. LaNasa, Mrs. Mannie Mallowitz, Mrs. J. E. Isaacson, and Mrs. H. B. Gessner, chairman. Mrs. J. W. Warren and Mrs. J. M. Davidson were ex-officio members.

In the future we hope to have other articles describing the educational and philanthropic work being done in the state by the individual auxiliaries. The ideas and methods set forth may be altered to other communities. Mrs. Hermann B. Gessner, a Past President of the Louisiana State Auxiliary, and chairman of the project, has brought to this work a deep interest and valuable experience in public work.

#### CALCASIEU PARISH

The Calcasieu Parish Medical Auxiliary held its first luncheon meeting of the year at the Bell Community Club House of Lake Charles, Friday, October 20, at one o'clock. Mrs. W. P. Bordelon, president for the coming year, presided.

Mr. R. F. Cisco, the guest speaker, gave an interesting and informative talk on the "Functioning of the By-laws of the Association of Commerce." Points were explained and the relationship of the Association to the entire community and the countless ways in which it is of service were brought out by the speaker.

During the business meeting arrangements were made for the usual donations for Thanksgiving food baskets; it was also decided to continue with the giving of Christmas food baskets, both being a yearly custom of the Auxiliary. Ways and means were considered by which the organization can help the doctors with their new library at the St. Patrick's Hospital; also to what extent the members can give their aid to the Child Welfare League, in which work the Auxiliary often assists, Mrs. Louis Hebert serving on the board. As an important part of the year's work, we will continue to give prizes for the best essay, written

by the seventh grade pupils of the parish schools, on a subject taken from Hygeia magazine.

At the November meeting the speaker will be Dr. Walter Moss who will show moving pictures and discuss the question of "Cancer Control."

Mrs. G. E. Barham,  
Publicity Chairman.

---

### RAPIDES PARISH

The Rapides Parish Auxiliary met on November 10, in Alexandria at the home of Mrs. W. B. Pearce for its second regular meeting of the year.

Mrs. M. H. Foster, President, conducted the business meeting and introduced the two guest speakers: Dr. Claybrook Cottingham, President of Louisiana College, who spoke on "World Events", and Mrs. S. M. Blackshear, President of the State Auxiliary, who spoke on "Organization and Cooperation."

Following these two splendid addresses, the members and guests were delightfully entertained.

Mrs. H. Aubrey White,  
Publicity Chairman.

---

Mrs. S. M. Blackshear called together members of the Board of the Woman's Auxiliary to the Louisiana State Medical Society, for a meeting on October 26, at her home in New Orleans. It was a splendid meeting with twenty-seven members present, many of whom came from out of town.

Respectfully submitted,

Mrs. Edgar Burns,  
Press and Publicity Chairman.

### IN REGARD TO PUBLIC RELATIONS

To The Presidents of the Parish Auxiliaries:

From time to time, during the coming year, I hope to have suggested helpful material to send you. Should the nature of the material be that which would make an interesting program at your monthly meeting, I would suggest that either you or your Chairman of Public Relations, read the pamphlet to your auxiliary.

As stated by our national constitution, the first object of the Woman's Auxiliary is through its members to extend the aims of the medical profession to all organizations which look to the advancement of health education.

Perhaps, with this in mind, your meeting could be made a "get-together" of all the womans' clubs in the parish. Invite the Auxiliaries of the organizations to tea; let the Medical Auxiliary be hostess, and have one of the doctors of your parish society talk on Socialized Medicine. Our State President, Mrs. Blackshear, suggests that we endeavor to make such a meeting an annual event.

Please bring this matter up before your auxiliary at your next meeting, and let me know what the response was.

Sincerely hoping that during these times of confusion and misunderstanding, due for the most part to misinformation on medical problems, the Public Relations function of the Auxiliary will meet the expectations of those who have entrusted this duty to us, I am

Very truly yours,

Mrs. F. Creighton Shute,  
Chairman, Public Relations Committee  
Woman's Auxiliary to the Louisiana  
State Medical Society.

---

## BOOK REVIEWS

*Do You Want To Become A Doctor?:* By Morris Fishbein, M. D. New York, Frederick A. Stokes Co., 1939. Pp. 176. Price \$1.50.

When a young man plans to become a doctor it is necessary for him, except under unusual circumstances, to make the decision before or soon after he has entered college. At this time there are a host of questions having to do with his immediate training and his more remote training in the future that he will have to have answered. It is very difficult at times to get the information, hard both for the prospective physician and equally difficult for his parent who is likewise interested in knowing how long he will have to support his son or daughter while he or she is obtaining an education. To answer these questions, Fishbein has prepared this book. He has collected many data and so can give a tremendous number of facts which are difficult to get or obtain under ordinary circumstances.

As indicative of the contents of the book a few of the chapter heads might be quoted with a brief recital of their contents: "Preparation for Medical School" has to do with a list of accredited schools, the courses that should be taken, aptitude tests and so on. The next chapter, "Choice of a Medical School" gives a historical synopsis of the schools, the size of the faculties, the names of deans, the tuition fees and other pertinent facts about every recognized medical school in the country. Chapter Four, on the "Cost of Medical Education," will be an eye-opener to the parent of the embryo doctor. Not only will he be astounded at the cost of his education, but the sibling will also be surprised at how much it costs the medical school to educate the individual student. Having entered the school, the next important step in the life of the doctor-to-be is the internship. Chapter Five gives much pertinent information. Succeeding chapters have to do with "State Licensing

Examinations," with "The Specialist," together with a chapter "On Beginning Practice." The section on "The Accessory Professions" deals with the laboratory technician, the physiotherapist, the occupational therapist and very briefly with other occupations tied up with the medical profession. The last two chapters consider "The Future of Medical Practice" and the "Contribution of Medicine to Public Welfare." This final chapter concludes with an optimistic note on the future of medicine.

This handbook should prove valuable to every high school or college student who is preparing, or is likely, to take up medicine as a profession; it should be of great service to the medical student; it should be read by the intern if he does not know what he wishes to do with his future, and lastly it might be well for the individual doctor to have it at hand because he surely will be consulted by parents of sons, or the sons themselves, who may want information concerning medical education.

J. H. MUSSER, M. D.

---

*Manual of the Diseases of the Eye:* By Charles H. May, M. D. Baltimore, William Wood & Co., 1939. Pp. 515. Price \$4.00.

In the sixteenth edition of this widely used text several chapters have been rewritten. Material on perforating wounds of the globe has been assembled into a separate chapter. New material includes sections on compensation for eye injuries and visual standards for operating motor vehicles. Numerous color plates of external diseases and of fundus lesions have been added.

The book maintains the original purpose of the author in presenting a concise and practical manual for students and general practitioners.

P. W. RENKEN, M. D.

---

*Modern Clinical Psychiatry:* By Arthur P. Noyes, M. D. Philadelphia, W. B. Saunders, 1939. Pp. 570. Price \$5.00.

Deserving of comment is the appearance of a second edition of this meritorious work and there are several striking characteristics about the volume. These are its admirable simplicity and clarity and its mature, profound and scientifically accurate viewpoints.

Doctor Noyes has revised his previous presentation of many psychiatric concepts that are now accepted as fundamental and he has added many of the observations and conclusions contained in the unusually rich and stimulating psychiatric literature of the past five years. There has been a widening recognition that man is a unitary-reacting, biological but social organism and that psychiatry is engaged with the difficulties which human beings as individual organisms experience in their psychobiologic adaptation. Psychiatry is therefore becoming more concerned with emotional or other inabilities of the personality that prevent

the individual's adjustment either at the social or physiologic level.

Admirably described in detail is the pharmaceutical treatment of certain of the major mental disorders, especially by shock or by the use of convulsant agents.

There has been added to the second edition an excellent chapter on psychiatry and general medicine. Herein the reader is told that one cannot split the individual into a mental part and a physical part and that the interpenetration and interdependence of body and mind are so intimate and subtle that there seems to be no physical condition which may not be attended by emotional concomitants and no emotional state that may not evoke physical symptoms, real or apparent. Emotional and personality factors enter to some degree into any illness or injury and at times become serious complications.

The book is quite complete and wholly satisfactory. It will undoubtedly occupy a conspicuous place in psychiatric literature and be a valuable aid to those who make use of it.

C. P. MAY, M. D.

---

*The Genuine Works of Hippocrates:* By Francis Adams, LL.D. Baltimore, The Williams & Wilkins Company, 1939. Pp. 384. Price \$3.00.

This is a reprint of Francis Adams' excellent, oft quoted, but too little read translation of the genuine "works" of Hippocrates. It appears in excellent format and typography at a reasonable price.

B. BERNARD WEINSTEIN, M. D.

---

#### PUBLICATIONS RECEIVED

American Medical Association, Chicago: *The Vitamins, A Symposium* arranged under the auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association, 1939.

Lea & Febiger, Philadelphia: *Tumors of the Skin* by Joseph Jordan Eller, M. D.

J. B. Lippincott Company, Philadelphia: *Fractures* by Paul B. Magnuson, M. D., F. A. C. S.

The Macmillan Company, New York City: *A Manual for Diabetic Patients* by W. D. Sansum, M. D., Alfred E. Koehler, Ph. D., M. D., and Ruth Bowden, B. S.

W. B. Saunders Company, Philadelphia: *Cancer of the Larynx* by Chevalier Jackson, M. D., Sc. D., LL. D., F. A. C. S., and Chevalier L. Jackson, A. B., M. D., M. Sc. (Med.), F. A. C. S.

The Williams & Wilkins Company, Baltimore: *An Introduction to Dermatology* by Norman Walker, Kt, M. D., LL. D., F. R. C. P., and G. H. Percival, M. D., Ph. D., F. R. C. P. *Medical Record Visiting List for 1940. Epidemiology in Country Practice* by William Norman Pickles, M. D., (Lond.).

# New Orleans Medical

and

# Surgical Journal

Vol. 92

JANUARY, 1940

No. 7

## THE RELATION OF HISTAMINASE TO INTESTINAL TOXEMIA AND ASTHMA\*

PRELIMINARY REPORT

ALLAN EUSTIS, M. D.

NEW ORLEANS

For more than three decades I have tried to interest the medical profession as to the importance of a consideration of intestinal toxemia in all medical cases,<sup>1</sup> but more especially, in the treatment of asthma and urticaria<sup>2</sup>; assuming that histamine was the specific cause of these clinical manifestations, but being unable to prove it. However, in 1912<sup>3</sup> I was able to produce experimental asthma in the guinea pig by the intravenous injection of histamine. Certainly, attention to the prevailing intestinal putrefaction, and restriction of diet to one with a low histidin content, has been of inestimable value in controlling the asthmatic attacks while the specific allergen is being determined, and during desensitization.

Ackermann,<sup>4</sup> many years ago noted that histidin yielded, on putrefaction, beta-imidazolylethylamine—hence the very name histamine—yet few of us take cognizance of the presence of this amine in the intestinal canal. As early as 1915<sup>5</sup> I was able to demonstrate that the liver of the ordinary turkey buzzard contained an enzyme which rendered histamine inert. More recently, Best and McHenry<sup>6</sup> have been able to iso-

late an enzyme from the intestinal mucosa, the liver, kidneys and lungs of dogs which acts similarly, and for which they have suggested the name "histaminase." I have been fortunate in obtaining an ample supply of this material \* for clinical observation, the results of which are so amazing that I feel justified in submitting this preliminary report in corroboration of the recent report of Forshay and Hagebusch<sup>7</sup> on the result of the treatment of serum sickness with histaminase, which may appear extraordinary to one not acquainted with the biochemistry of this condition.

Due to the work of Dale<sup>8</sup> and his co-workers, also Dragstedt<sup>9</sup> and his co-workers, and more recently Code,<sup>10</sup> it is generally accepted that the several allergic manifestations observed are due to the local liberation of histamine in the tissues. If such is the case it is reasonable then, in the treatment of allergy, to limit the source of histamine to this local point, eliminating all other sources of histamine, notably from the intestinal canal. The results obtained in other conditions than asthma by the administration of this so-called "histaminase" lead me to suppose that this enzyme acts not only on histamine but also on the other toxic amines in the intestinal canal.

On putrefaction, the several amino acids split off CO<sub>2</sub> and form a corresponding amine with definite physiologic action.

\* Read before the Orleans Parish Medical Society, June 12, 1939.

\* The histaminase was supplied by the Department of Medical Research, Winthrop Chemical Company, Inc., New York.

CHART 1

TABLE SHOWING AMINES CORRESPONDING TO AMINO ACIDS AND THEIR  
PHYSIOLOGIC ACTION

Amino Acid $RNH_2COOH$	Corresponding Amine $R. NH_2$	Synonym	Physiologic Action	Authority
Leucine.....	Iso-amyl amine.....		Raises blood pressure.....	Dale and Dixon <sup>11</sup>
Tyrosine.....	Para-hydroxy-phenyl-ethyl-amine.....	Tyramine.....	Raises blood pressure.....	Dale and Dixon <sup>11</sup>
Histidine.....	Beta-imidazolyl-ethylamine.....	Histamine.....	Lowers blood pressure Contracts uterus and bronchioles.....	Dale and Laidlaw <sup>12</sup> Ackermann <sup>1</sup>
Lysine.....	Pentamethylene-diamine.....	Cadaverine.....	Lowers blood pressure, nausea, vomiting.....	Vaughan and Novy <sup>13</sup> Kossel <sup>14</sup>
Arginine.....	Guanidine-tetramethylene amine.....	Agmatine.....	Not constant.....	
Tryptophane.....	Indol and skatol.....		Headache, vertigo, nausea, vomiting.....	Herter and Wakeman <sup>15</sup>
Tryptophane.....	Indol ethylamine.....		Clonic and tonic convulsions.....	Laidlaw <sup>16</sup>

Over forty years ago my former chief, Russell Chittenden, taught that peptones on absorption and passage through the intestinal mucosa disappear as such. It is generally accepted that nature has a definite defense against intestinal poisons; although Herter<sup>15</sup> showed that indol, which is definitely toxic, is oxidized in the liver to indoxyl and combined with potassium and sulphuric acid to form potassium indoxyl sulfate, or indican, an inert substance. The exact mechanism is not understood. Ewins and Laidlaw,<sup>17</sup> by perfusing tyramine, the amine from the putrefaction of tyrosine, through the liver of a dog, showed that it is broken up into urea and oxyphenyl acetic acid, and later<sup>18</sup> under the same conditions showed that indol ethylamine forms indol acetic acid. Only by acting on the several amines in the intestinal canal and rendering them inert, can one explain the beneficial results of this so-called histaminase when administered in enteric coated capsules; the enzyme probably rendering the histamine in the alimentary canal inert, thus allowing the histaminase in the tissues to cope with the par-enteral histamine.

I am reporting only four cases of patients with asthma who were treated with histaminase, The surprising results of which warrant this preliminary report; a final report is to be made later after further clinical observations.

## CASE NO. 1

H. F. D., is a white male, 29 years of age, whose asthma could be controlled by low histidin diet, but whenever he ate crabs or shrimp, an attack of asthma would follow. After taking 24 units\* of histaminase in enteric coated capsules he ate large quantities of both crabs and shrimp without any symptoms of asthma. On 24 units of histaminase daily, with total disregard of diet, he remained free from asthma for four days and the dose was reduced to 12 units daily. He had slight wheezing and the dose was increased to 24 units daily with no symptoms of asthma for two weeks. Histaminase was stopped and in three days he had a mild asthmatic attack, but no further attacks after resuming histaminase. By curtailing somewhat his histidin intake he has been free from asthma for the past month, with only 4 units of histaminase daily.

## CASE NO. 2

D. B., a colored male, 50 years old, has had asthma for the past five years, and on account of inability to control diet, he rarely had a full night's sleep because of asthma. After taking 64 units of histaminase in enteric coated capsules, he obtained complete relief and has had no seizure for the past month with 15 units of histaminase daily.

## CASE NO. 3

A. W. Jr., a white male, 8 years old, has had constant asthmatic attacks with severe paroxysmal coughing since last June from a complicating bronchitis and mediastinal adenitis.

According to his parents he had not had a full night's sleep since June and had lost considerable weight. On a low histidin diet and 48 units daily of histaminase in enteric coated capsules, he obtained partial relief after taking 96 units of histaminase, and complete relief after taking 300 units. At present he is free from symptoms with

\*A unit of histaminase is the amount necessary to inactivate 1 mg. of histamine.

negative auscultatory findings on 5 units of histaminase three times a day. Diathermy through the mediastinum may have had some influence in overcoming the associated adenopathy.

## CASE NO. 4

Mrs. W. E. M., a white female, 54 years old, has been under my observation for the past eight years. She has a chronic ethmoiditis with recurrent nasal polypi and has been a very intractable case of asthma, associated with myocardial weakness and bronchiectasis. Her asthmatic attacks were so severe that it was necessary to take from three to four hypodermatic injections of adrenalin daily to obtain relief. Low histidin diet gave only partial relief. On 48 units daily of histaminase in enteric coated capsules, she has had only very mild attacks of asthma, promptly relieved by adrenalin spray (1-100), and she has not had to take any adrenalin by needle.

## COMMENT

If a definite amount of histaminase is necessary to inactivate a certain amount of histamine, then to overcome the effects of histamine in the intestinal canal, it is logical to give relatively large doses of histaminase at the beginning of treatment. By limiting the amount of ingested histidin, a relatively small dose of histaminase is required, and in many instances if the diet is controlled, none is necessary. However, for the general practitioner who is unacquainted with the chemistry of the several foodstuffs, histaminase may possibly control asthmatic attacks until the specific allergen is identified and desensitization can be carried out.

The histidin content of the more common proteins is contained in the following chart:

PROTEIN	SOURCE	PER CENT HISTIDIN
Sturin.....	Fish .....	12.90
Hemoglobin.....	Blood .....	10.93
Syntonin.....	Meat .....	2.66
Albumin.....	Eggs .....	2.50
Caseinogen.....	Milk .....	2.60
Legumin.....	Green peas .....	2.50
Phaseolin.....	Beans .....	2.60
Edestin.....	Hemp .....	2.19
Vignin.....	Cow peas .....	3.08
Gliadin.....	Wheat .....	1.70
Peptone.....	All protein .....	1.12
Amandin.....	Almonds .....	1.53
Zein.....	Maize .....	0.81
Protamine.....	Rye .....	0.39
Gelatin.....	Tendons .....	0.40

## SUMMARY

No untoward by-effects have been noted and from a physiologic standpoint none

should be expected from oral administration of histaminase. In a few instances the capsules were passed by rectum, unabsorbed, but this has been overcome by giving them at least one-half hour before meals. The product deteriorates rapidly and should be kept in a refrigerator.

## REFERENCES

1. Eustis, Allan: Acute spasmodic asthma as evidence of autointoxication, *New Orleans M. & S. J.*, 61:98, 1909.  
A plea for the more general consideration of intestinal toxemia in the diagnosis and treatment of disease, *South. Med. J.*, 17:12, 1924.  
The relation of intestinal toxemia to allergy, *South. Med. J.*, 23:308, 1930.
2. Eustis, Allan: Further experiences in the dietetic treatment of bronchial asthma, *South. Med. J.*, 9:387, 1916.  
Urticaria: An experimental lesion produced by the local application of beta-imidazolyethylamine. Its relation to intestinal toxemia, *New Orleans M. & S. J.*, 66:730, 1914.
3. Eustis, Allan: Further evidence of the toxic pathogenesis of bronchial asthma, *Am. J. Med. Sci.*, 143:862, 1912.
4. Ackermann, D.: Uber den bakterielle Abbau des Histidins, *Zeit. f. Physiol. Chem.*, 65:504, 1910.
5. Eustis, Allan: The detoxicating effect of the liver of cathartes aura upon solutions of beta-imidazolyethylamine, *Biochem. Bull.*, 4:97, 1915.
6. Best, C. H. and McHenry, E. W.: The inactivation of histamine, *J. Physiol.*, 70:349, 1930.
7. Forshay, Lee and Hagebusch, O. E.: Histaminase in serum sickness, *J. A. M. A.*, 112:2398, 1939.
8. Dale, H. H.: Some chemical factors in the control of the circulation, *Lancet*, 1:1179, 1929.
9. Dragstedt, Carl A. and Gebauer, F.: Demonstration of an anaphylactic poison, *Proc. Soc. Exp. Biol. & Med.*, 29:891, 1932.  
Dragstedt, Carl A. and Mead, F. B.: Further observations on the nature of the active substance (anaphylatoxin) in canine anaphylactic shock, *J. Immunol.*, 80:319, 1936.
10. Dragstedt, Carl A. and Mead, F. B.: The role of histamine in canine anaphylactic shock, *J. Pharm. & Exp. Therap.*, 57:419, 1936.
11. Code, C. F.: The source in blood of the histamine-like constituent, *J. Physiol.*, 90:349, 1927; also *Lancet*, 2:730, 1937.
12. Dale, H. H. and Dixon, M. A.: The action of pressor amines produced by putrefaction, *J. Physiol.*, 39:25, 1909.
13. Dale, H. H. and Laidlaw, P. P.: The physiological action of beta-imidazolyethylamine, *J. Physiol.*, 41:318, 1910.
14. Vaughan, V. C. and Novy, F. G.: Cellular Toxins, Lea & Co., Philadelphia, 1899.
15. Kossel, A.: Uber das Agmatin, *Zeit. f. Physiol. Chem.*, 66:257, 1910.
16. Herter, C. A. and Wakeman, A. J.: The action of hepatic, renal and other cells on phenol and indol, under normal pathological conditions, *J. Exp. Med.*, 4:307, 1899.
17. Laidlaw, P. P.: The physiological action of indolethylamine, *Biochem. J.*, 6:141, 1911.
18. Ewins, A. J. and Laidlaw, P. P.: The fate of paraoxyphenylethylamine in the organism, *J. Physiol.*, 41:78, 1910.
19. Ewins, A. J. and Laidlaw, P. P.: The fate of indolethylamine in the organism, *Biochem. J.*, 7:18, 1913.

## PHYSIOTHERAPY IN SIMPLE FRACTURES INTERSECTING JOINTS\*

GUY A. CALDWELL, M. D.

NEW ORLEANS

Physiotherapy has an important place in the treatment of fractures. It accomplishes most, perhaps, in those fractures which intersect joints. Unfortunately, however, treatments have been poorly timed and improperly given in many instances resulting in more harm than good. To be effective, the proper measures of physiotherapy must be timed accurately with the changing conditions of repair that are proceeding in and about the injured joint surfaces. The pathologic changes occurring in simple fractures intersecting the joints are herewith reviewed, together with the physiotherapeutic measures that should be applied at the various stages of repair.

Crippling from fractures extending into joints is caused by stiffness, pain or weakness associated with abnormally free motion. Each of these disabling factors may result from various causes. Restriction of motion may occur because the unreduced fragments form a bone block that checks joint movement, or from excessive callus produced at the joint margins and extending into the capsule. Contractures of the capsule or tendons from fibrosis or adhesions between the various gliding structures may limit motion. Adhesions inside the joint or in the periarticular structures are common causes of stiffness.

Painful motion is disabling; it may result from poor apposition of the fragments, from scarred portions of the synovial lining or inadequate lubrication of the joint with synovial fluid. Faulty alignment of fragments that throws weight and strain upon weaker parts often causes pain on exercising the joint. Adhesions that form between the bone margins and capsule or between gliding surfaces of the joint expansions may restrict motion and produce pain. Treatment must, therefore, have as its purpose accurate reduction of the fragments,

prevention of adhesions and avoidance of excessive callus formations.

The pathologic changes accompanying a fracture into a joint are not all apparent in the roentgenologic films made in two planes. It must be realized that the force sufficient to produce a fracture, also injures the cartilaginous surfaces, ligaments and capsule, and permits bleeding into the joint cavity. When a direct blow has caused the fracture, the skin and subcutaneous tissues have been contused and hemorrhage into the periarticular structures, fat pads, and synovial membranes probably has occurred.

During the first twelve or twenty-four hours after injury, marked hyperemia of the bone and periarticular structures occurs and is followed by an increased out-pouring of synovial fluid, leukocytic infiltration and edema of the soft tissues about the joint. Immediately following these changes there is clotting of the blood which has escaped into the soft tissues, while that which has entered the joint fails to clot unless the capsule and synovial membranes have been lacerated.

### INDICATIONS FOR TREATMENT

Bearing these changes in mind, the indications for treatment in this early stage are: early, accurate reduction to arrest bleeding and limit later callus formation; splinting, to immobilize the parts, check hemorrhage and relax muscular spasm; sedation, to relieve the pain; aspiration of the joint to relieve intra-articular tension; and the application of a pressure bandage about the joint when feasible, further to check bleeding and to hasten absorption of the excess of synovial fluid that is being formed. When the foregoing measures have been carried out, the part should be elevated to reduce congestion and edema. Considerable swelling and pain usually occur for the first two or three days and during this time no constriction must take place above the site of fracture.

The reparative processes that have begun immediately after injury and which proceed slowly through the third or fourth week may be summarized briefly as follows:

1. Formation of a fibrin network in the

\*Read before the Orleans Parish Medical Society, June 12, 1939.



clotted blood in the periarticular structures and between bone fragments.

2. Ingrowth of fibroblasts from surrounding connective tissue and invasion of the mass with new vessels to form granulation tissue.

3. These changes are accompanied by phagocytosis and the beginning absorption of calcium from the fractured bone ends.

4. About the tenth to the fourteenth day deposition of calcium in the granulation tissue begins and continues until about the fourth week, during which time soft callus with irregular bone trabeculae is formed.

5. About the third or fourth week resorption of the soft callus begins and it is replaced with the permanent hard callus.

Because the blood supply to cancellous bone is abundant and the spaces are relatively wide, repair of fractures near the joints proceeds more rapidly than when they occur in the shaft. There is some deposition of calcium and formation of early callus, beginning about the second week and continuing for two or three weeks, but there is seldom any roentgenologic evidence of this new bone formation and calcification until several weeks later. Our judgment of the amount of motion and strain to be thrown on to this newly formed callus must, therefore, be guided by general knowledge of the pathologic changes together with the symptoms of gradually disappearing tenderness and swelling rather than by interpretation of the x-ray shadows.

Based on knowledge of the reparative changes that occur during the first three or four weeks, the indication for treatment after early reduction and splinting is to continue complete immobilization. It is obvious that care of the fracture must take precedence over the soft tissue injuries which otherwise might be given heat and massage at an earlier date. Administration of diathermy to the splinted parts has proved impractical. Pain and swelling usually diminish after three to seven days and the circulation then can be improved by alternately raising and lowering the injured limb for short periods of time. Voluntary movements of the joints distal to the injury that are not included in the splint, may be

started at the same time and is a most valuable physiotherapeutic measure. Alternately contracting and relaxing muscles in the neighborhood of the joint accomplishes a sort of internal massage that assists the return of venous blood toward the heart, improves lymphatic drainage, thus decreasing edema and retaining the proper tonus in the splinted muscles.

After the third or fourth week the bone fragments are knitted strongly enough to withstand limited ranges of gentle motion. The callus is yet soft and will yield to vigorous, voluntary efforts or may be crushed if levered against the opposing joint surface by forcible passive movements. Muscular atrophy, weakness, and perhaps mild contractures, the results of splinting, must be cared for at this time. Fibrosis of the capsule, tendons, muscles and periosteum; diminished synovial secretion, intra-articular adhesions, the persistence of dead cells of bone and cartilage are all present in some degree and must be dealt with when treating the part. These pathologic changes can be improved or eliminated by the use of some form of heat that increases the blood supply to the part, by assisting lymphatic drainage with light massage and bandaging, by avoiding forcible movements and weight bearing and, lastly, by voluntary contractions of the weakened muscles. Deficient secretion of synovial fluid is stimulated best by often repeated movements, preferably voluntary or active joint motion. Absorption of intra- and periarticular adhesions is accomplished by all the foregoing measures, consistently carried out over a considerable period of time. There is no magic melting of fibrous bands by elevating the temperature of the part with diathermy and no forcible manipulation can be so expertly given that it will not be dangerous.

#### REASONS FOR THE USE OF HEAT

The purpose of heat is to flush the circulation about the joint and throughout the extremity. There is no indication to bake, cook, melt or weld any part of the joint. Diathermy, with its short and long waves producing heat by resistance of the tissue cells to an electric current of high

frequency, will improve the blood supply about a joint. It has no special virtue, possesses many limitations and no form is without some danger. Radiant heat, supplied by lamps of various sizes and patterns, can be applied to only one side of the joint at a time. Dry heat, well distributed, produces a very good flushing of the circulation, but any apparatus which distributes heat properly is usually quite cumbersome. Moist heat, which can be supplied by encasing the limb in thick, moist bath towels is a very excellent method of improving the blood supply to an injured joint. In the long run, immersion of the entire limb in a warm bath for fifteen or twenty minutes is probably the simplest and most effective method that can be used. It, moreover, has the virtue of being easily applied in the patient's home.

Following a warm bath the measure which will further promote the blood supply, relax muscles and increase lymphatic drainage, is massage. The principles governing its administration should be: First, to place the injured part in a relaxed, comfortable position, and secondly, to use gentle stroking from the distal parts towards the heart, passing lightly and smoothly over the injured region. There is no place for kneading, tapotement or vibratory movements of any kind and only harm can come from such vigorous types of massage. A most helpful measure of treatment at this period which supplements heat and massage is bandaging of the entire extremity with a smoothly applied, elastic bandage. This should be worn only while the part is in active use and dependent and may be removed when the patient lies down. The bandaging prevents excessive edema, swelling and congestion, thus aids the circulation and is most grateful to the patient.

#### THE QUESTION OF MOTION

The last and most important consideration with reference to physiotherapeutic measures is motion of the injured joint at about the fourth week when callus is yet soft and not well calcified. Should one use active or passive movements? Active movements are those which are initiated and con-

trolled by the patient, and are automatically checked when they cause pain. Passive motion, on the other hand, given by the operator may not always be stopped at the point of pain, and may produce damage. The muscles, weakened from disuse and splinting, rapidly regain strength through voluntary exercise by the patient; they benefit little, if any, by movements administered by the operator. The patient's sense of pain gives an automatic check which prevents his throwing too much strain upon soft callus and when he is left to perform his own movements, we can be reasonably sure that no harm will come to the newly forming bone. When the operator is administering motion, however, it is very easy for him to crowd the motion a little too far and open a fracture line or compress the soft callus. The patient, when making voluntary movements, will carry them to the point of mildly stretching the adhesions but will always stop short of tearing them because of pain, but when a technician employs forced movements, adhesions may be torn, hemorrhage occurs and new fibrous bands are formed. He who learns to initiate and carry out his own joint movements becomes self reliant, gains confidence and loses fear, whereas one who is treated solely with passive motion becomes dependent upon the physiotherapist, dreads his treatment, fears the pain, develops resistive movements and makes poor progress. The patient who learns to make voluntary movements under the direction of a skilled instructor can soon be trusted to repeat the movements frequently during the day or may even begin occupational therapy at a much earlier date than the one who has come to rely entirely upon his treatments at the hospital or office and keeps his injured part carefully covered between visits.

The simplest physiotherapeutic measures fitted in properly during the various stages of joint repair following early and accurate reduction of the fractured surfaces will always bring about best possible use of the joint. There is no short cut to a good result by way of forcible manipulations, faradic stimulation or the use of mechanical apparatus of any kind. Joint function is re-

gained most rapidly when the patient is carefully taught to employ his own muscles to effect the maximum range of motion as often as possible without producing pain and swelling of the joint. Restoration of strength and motion is further hastened when he can be persuaded to use that part freely in some light occupation which will keep him interested and actively at work most of the day.

#### SUMMARY

This conception of the physiotherapeutic measures that are of real value is a far cry from the racketeering methods all too common today. Week after week of valuable time is lost when patients report every second day for a so-called physiotherapy treatment consisting of diathermy or radiant heat applied to the joint for twenty minutes, followed by bathing it a few seconds with alcohol and returning it to a splint. Untold harm is done when the patient becomes discouraged and his physician so desperate that he then resorts to the "pump handle" methods of manipulating the joint, with or without an anesthetic. Such forcible and illogical measures for relieving stiffness following fractures into joints originated with the charlatan and quack and should be left entirely to them. Physicians and surgeons worthy of the name should get away from machine made, automatic types of so-called physiotherapy, and apply only the simple, time-honored measures with judgment, perseverance and patience.

#### DISCUSSION

Dr. R. H. Alldredge (New Orleans): Dr. Caldwell has covered the subject so completely that there is little left to be said. There are a few points, however, which he has already mentioned, that I would like to re-emphasize at this time.

In the first place, early, accurate reduction of joint fractures is of prime importance and no form or amount of physiotherapy can take the place of accurate reduction. If possible, of course, closed reduction should be carried out, but open reduction should be resorted to when indicated. One still finds certain individuals who postpone reduction of fractures because of the presence of

swelling. Immediate reduction in the presence of swelling is the quickest way to reduce swelling and bring about a physiologic state of affairs.

Adequate immobilization of the joint following reduction is absolutely essential. The least amount of motion at the site of fracture causes more bleeding and trauma to the part and more injury which has to be repaired.

Physiotherapy in children has no place whatsoever. The reparative processes of nature bring about normal physiologic function.

There is one other point that I would like to mention. In connection with legal cases, it is very important to prevent these individuals from having too much physiotherapy. We should insist on their assuming their part of the responsibility for regaining active motion. If this is not done there is a possibility that they will develop a neurosis which may be more difficult to handle than the original injury.

Dr. Guy A. Caldwell (In conclusion): I wish to thank Dr. Alldredge for adding an important point with reference to physiotherapy in children's fractures. These present an entirely different problem in after care. Children's fractures heal very rapidly and they can hardly be kept from actively using the part to the maximum extent and there accomplish their own physiotherapy. When we try to help we do too much stretching and pulling which hurts and irritates the joint and causes excess callus formation. Children uniformly do so well without intervention that we have come to believe that physiotherapy has no place in the treatment of their fractures.

Dr. Murray, in his work at the Presbyterian Hospital in New York, advocates the use of physiotherapy very early in the treatment of fractures, prescribing certain active exercises at frequent intervals after the first or second day and through the third or fourth week. I suggested that this is the period for complete immobilization and little in the way of physiotherapeutic measures can be used. Dr. Murray has an experienced team of co-workers to carry out his plan of treatment. Early, active movements are permitted under expert supervision in the first few days and the fractured part is put up in balanced traction to expedite such movements. Such treatments are confined, however, to shaft fractures (not intersecting the joints) in which operation has been done and internal fixation applied to two sides of the bone. The same plan of treatment cannot be considered for joint fractures in which internal fixation is seldom used and is always insecure even when most carefully applied.

## THE MORE COMMON FRACTURES OF THE BONES OF THE HAND\*

ALBERT A. TISDALE, M. D.

LAFAYETTE, LA.

The more common simple fractures of the hand have received less attention than they deserve. The loss of proper function of the hand is a serious handicap. In fractures of the hand this loss of function can be reduced to a minimum when the four R's of fractures, that is recognition, reduction, retention and rehabilitation are performed correctly.

A surgeon, on diagnosing a fracture of a finger, usually thinks that he has a minor condition to care for and all too often merely places a tongue depressor or a padded board on the anterior surface of the member, irrespective of the fracture site, and feels confident that nature will do the rest.

Let me first plead for the free use of the x-ray in the diagnosis of these fractures. Many cases of fracture are misinterpreted as sprains clinically and therefore remain unreduced. In all doubtful cases we should explain to the patient the importance of having an x-ray plate made, and let the decision rest with him as to whether or not it is done. This is for the benefit of the patient and also for the protection of the physician from a medico-legal standpoint.

In the reduction and retention of these fractures we should have knowledge of the part to be treated. By knowing the specific muscles controlling the fragments we are able to reduce and maintain the fracture in reduction. The anatomy of the part is not merely of academic interest but rather of sound practical use. We are dealing with small long bones. The necessity of traction in the proper treatment of oblique fractures of other long bones such as the femur is recognized and we should recognize the like necessity of similar

treatment of oblique fractures of the long bones of the hand.

The general principles in the immediate reduction of fractures should be known. They are: (1) The deformity is increased; (2) traction on the one fragment and countertraction on the other fragment is effected; (3) by thumb and finger manipulation the edges of the two fragments are brought into contact; (4) maintaining traction, the angulation is reduced, thereby bringing the fragments into correct alignment.

### FRACTURES OF THE METACARPALS

*Bennett's Fracture:* This is an oblique articular fracture of the base of the first metacarpal bone with dorsal and lateral displacement of the shaft and overriding of the fragments. This is usually produced by axial compression of the bone.

This fracture is reduced by traction on the thumb and finger manipulation at the base of the thumb. In order to prevent recurrence of the displacement the thumb should be placed in traction in abduction. This can be done by incorporating a stiff wire loop in a plaster cast placed on the forearm, running up to the metacarpophalangeal joints. The wire loop should be narrow and extend beyond, and in line with the abducted thumb. Rubber bands make traction from the end of the wire loop to a steel needle or short Kirschner wire inserted through the pulp of the distal end of the thumb. Traction should be maintained for three weeks, followed by immobilization for one or two weeks longer. An unreduced Bennett's fracture is likely to produce a marked disability of the hand due to the involvement of the carpo-metacarpal joint.

The use of straw finger cots for traction should be mentioned only for condemnation.

*Transverse Fractures of the First Metacarpal:* In this fracture there is a definite tendency to an outward bowing. This injury is usually due to direct violence. After reduction by manipulation this fracture is easily and comfortably held in reduction by a figure of eight plaster cast around the

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, La., April 25, 1939.

thumb and wrist with the thumb in extreme abduction.

*Fractures of the Inner Metacarpals:* In transverse fractures of these bones the displacement depends partly upon the fracturing force but chiefly upon the muscle pull. The interosseous muscles are attached on either side of the base of the metacarpal and course distally across the fracture site to insert at the base of the proximal phalanx. The metacarpal bone has a normal dorsal convexity. This convexity and the strong flexion action of the interosseous muscles acting as bow strings produce a dorsal angulation at the site of the fracture. The head of the metacarpal is displaced anteriorly into the palm of the hand. If the fracture is not properly reduced there remains not only an unsightly tumor on the dorsum of the hand but also the head of the bone projects into the palm. These prevent firm grasping of objects and produce a permanent partial disability.

Oblique fractures of these bones require traction to maintain reduction. This can be done by using a modified banjo splint incorporated in a plaster cast on the forearm extending to the metacarpo-phalangeal joints, holding the wrist in slight cockup position.

Transverse fractures of the neck of the metacarpals are called "punch fractures," and are usually produced by a blow with the fist. The displacement is the same as in transverse fractures of the shaft. There is added to this an impaction of the fragments. After this impaction is broken up the reduction and retention are the same as in transverse fractures of the shaft.

The fractures of the metacarpals are frequently splinted by flexing the fingers over a ball or roll bandage in the palm. By referring to the displacement of the fragments and the action of the attached muscles we will see that this is plainly incorrect in that it serves only to increase the deformity.

#### PROXIMAL PHALANGEAL FRACTURES

The deformity in these fractures is fairly constant, regardless of the site of the frac-

ture or the force of the blow. They are particularly difficult due to the opposing actions of the muscles acting on the fragments and producing the deformity. There are the interosseous muscles producing flexion of the proximal fragment. The lumbricals, through their attachment to the fascia and ligaments of the dorsal surface of the middle phalanx, acting as extensors of the finger, produce a marked dorsal angulation of the distal fragment. Thus there is produced an anterior angulation at the fracture site. The long extensors and flexors of the fingers produce more marked anterior angulation at the fracture site after the shorter muscles have initiated the angulation. In this position the angulation protrudes anteriorly, causing the flexor tendons to play over the prominence and later adhesions and pressure interfere with the action of the tendons. If this deformity is not reduced and allowed to unite in this position the portion of the finger distal to the fracture cannot be brought into flexion but can be extended beyond normal extension. The finger cannot be brought into contact with the palm and when a heavy object is lifted it is found that part of the grip is lost and that pain is produced at the site of the old fracture.

Reduction is performed by following the general principles of reduction of long bones. After reduction the fragments are best maintained in this position by holding the fractured finger with the adjoining finger flexed over a roller bandage placed in the palm or some other similar shaped object. This brings the distal fragment into alignment with the flexed proximal fragment. In this position the fracture site does not tend to buckle into the original anterior angulation deformity. If an attempt is made to splint the finger, using a dorsal board splint holding the finger in extension, it will be found that the fracture cannot be held in reduction but will retain an anterior angulation at the fracture site. For that reason straight splinting is not to be employed. The immobilization in the flexed position should be maintained for two to three weeks at which time straight splint-

ing can be used for an additional week or two.

Oblique fractures require traction to maintain reduction as in other long bones. The finger should be flexed at the metacarpophalangeal joint during this traction.

#### DROP OR MALLET FINGER

This is an avulsion of the tendon of the extensor digitorum from its insertion on the dorsal surface of the base of the terminal phalanx. The x-ray usually shows a small chip of bone has been pulled off by the tendon. It is due to a sudden forceful flexion of the extended finger such as a baseball hitting the end of the extended finger. It is sometimes called a "baseball finger." The extensor tendon retracts, taking with it the small chip of the phalanx. This is reduced by hyperextending the terminal phalanx on the extended finger to approximate the fragments. It can be maintained in reduction by a padded metal trough splint bent in the shape of the hyperextended finger. Hyperextension should be continued for about four weeks. If the fracture is not reduced there will be a permanent inability to extend fully the terminal phalanx of the finger.

Rehabilitation of the fractured hand should be kept in mind during the treatment of the acute fracture and not be neglected until after bony union is evident. This is especially true in the older patient in whom disability following hand fractures is much more likely to occur and to a greater extent. Resultant limitation of motion can be markedly reduced by applying the original fixation only to that portion of the hand necessary to fix the fragments of the bone, permitting and even insisting that the patient actively move all joints not immobilized by the splint. Splints should be removed as soon as practicable considering the patient's ability to follow instructions concerning the protection the part demands. After the splints can be safely removed, active physiotherapy should be instituted. Valuable exercises and other forms of treatment can be carried out at home. Warm water soaks to the entire hand followed by massage and kneading of the

indurated tissues about the joints with active and passive movements will bring about remarkable recovery of normal motion. Forced motion under an anesthetic in joints having limitation of motion from fibrosis or shortening of the joint capsule is not to be used.

#### SUMMARY

The degree of rehabilitation following fractures of the hand is directly dependent upon the patient's earnest and sincere desire to regain full usefulness of his hand and his willingness to cooperate.

#### REFERENCES

1. Magnuson, P. B.: *Fractures*. Philadelphia, J. B. Lippincott Co., 1936.
2. McNealy, R. W., and Lichtenstein, M. E.: *Fractures of the metacarpals and the phalanges*, *Surg. Gynec. Obst.*, 55:758, 1932.
3. McNealy, R. W., and Lichtenstein, M. E.: *Bennett's fracture and other fractures of the first metacarpal*, *Surg. Gynec. Obst.*, 56:197, 1933.
4. Owen, H. R.: *Fractures of the bones of the hand*, *Surg. Gynec. Obst.*, 66:500, 1938.
5. Roberts, N.: *Fractures of the phalanges of the hand and metacarpals*, *Proc. Royal Soc. Med.*, 31:793, 1938.

#### DISCUSSION

Dr. Guy A. Caldwell (New Orleans): Dr. Tisdale has given an excellent, clear, concise review of the principles of treatment of the more common fractures of the hand.

I should like to emphasize the advantages of immediate reduction by manipulation and careful splinting along the lines suggested. One should not expect the splint to accomplish reduction, even when there is an oblique fracture with overriding and some form of traction is employed. It is always well to break up impaction and with digital manipulation, aided by traction if necessary, approximate the fragments and check their position with the x-ray. If the position be satisfactory, then apply the approximate splint and re-check the position with the x-ray.

Where reduction cannot be obtained by manipulation, immediate open reduction should be done. Open reduction of fractures of phalanges after three to six weeks gives disappointing results as a rule. Dr. Tisdale has referred to the forward angulation which usually occurs with inclusion of the flexor tendons in callus that forms in the course of two or three weeks. When an open reduction is then attempted, the approach is difficult. The phalangeal nerves are easily injured and trophic disturbances frequently follow. When the flexor tendons are finally freed from callus, the sheath is usually lost and adhesions form which limit the usefulness of the fingers even when good alignment and union of fragments has been se-

cured. Most of these difficulties can be avoided by doing the open reduction shortly after injury. If careful manipulations are done and controlled by x-ray examination, if splinting be intelligently planned and carefully applied along the principles outlined by the essayist, and if close supervision of the splinting be maintained for three weeks, the need for open reductions would almost never occur.

Dr. Tisdale did not attempt to discuss the care of compound fractures of the hand. These are very common and present our greatest problem. Thorough cleansing, careful debridement and suture, if contamination has not been too serious, followed by splinting with traction planned to permit access to the wound is essential. To accomplish these ends one has to exercise considerable ingenuity and care, but it is usually possible and the principles for controlling the displacements are the same as illustrated by the essayist.

Dr. T. M. Oxford (Shreveport): I think Dr. Tisdale has thoroughly covered the subject of fractures of the hand. One point I want to bring out somewhat in disagreement with the method he has for traction, that is, the use of a pin or needle through the pulp of the finger. We have used that form of traction off and on and occasionally we have gotten necrosis of the end of the finger or, if placed a little bit further anteriorly, the pin cut its way out and produced a sensitive end of the finger later on. Particularly in compensation cases, where patients have a tendency to prolong their disability, they will complain unduly of a sensitive end of the finger and perhaps they do have some right to complain. I know it is customary to use the pin or needle through the pulp because the pulp is tough. On several occasions we have used the pin or needle through the distal phalanx and it holds just as well. I think often you need pretty heavy traction to maintain reduction and you can get this traction a little more satisfactorily with the needle or pin through the bone. This is the only point I have in mind.

Dr. Tisdale (In conclusion): I wish to emphasize also that in the treatment of compound fractures of the finger we see cases in which the wound is treated but no thought is given to the fracture. Consequently when you do get union and healing of the soft parts you have great deformity which frequently necessitates an open reduction. We should maintain traction on these cases while the soft parts are healing and the fractures are uniting.

I was afraid, Dr. Oxford, that you were going to say you opposed the use of pins through the fingers but I have no argument concerning the use of pins either through the pulp or through the bone of the terminal phalanx. In reference to traction, I have not been able to get adhesive traction on the skin of the finger to put sufficient pull and I do prefer using pins.

## ACUTE PERFORATED GASTRIC AND DUODENAL ULCER\*

CHARLES B. ODOM, M. D.†

AND

MICHAEL DEBAKEY, M. D.‡

NEW ORLEANS

Undoubtedly one of the most serious and important complications of gastroduodenal ulceration is acute perforation. Of even greater significance is the fact that apparently it is occurring with greater frequency. In spite of voluminous investigations, the etiology of this condition remains yet unestablished,<sup>1</sup> consequently considerable divergence of opinion exists concerning its therapy. Even the type of surgical procedure advocated in such a complication as acute perforation varies remarkably. With these views in mind and in an attempt to determine some of the contributing factors in the mortality, the authors have analyzed the cases at the Charity Hospital in New Orleans.

### INCIDENCE AT CHARITY HOSPITAL

During the ten year period, 1929 to 1938 inclusive, 2607 cases diagnosed as peptic ulcer were admitted to this institution. Of this number, there were 211 cases of acute perforated ulcer, an incidence of approximately 8 per cent. Whereas the incidence of peptic ulcer in general apparently is increasing, the frequency of acute perforation is becoming disproportionately greater. Thus, although the percentage of ulcers per 100,000 admissions to the hospital increased annually from 0.0444, in 1929, to 0.0614, in 1938, the comparable figures for the acute perforations were 0.0139 and 0.0782. In other words, the increase in ulcer in general over a ten year period was approximately one and a half times, whereas the increase in acute perforations was approximately seven times. This has been

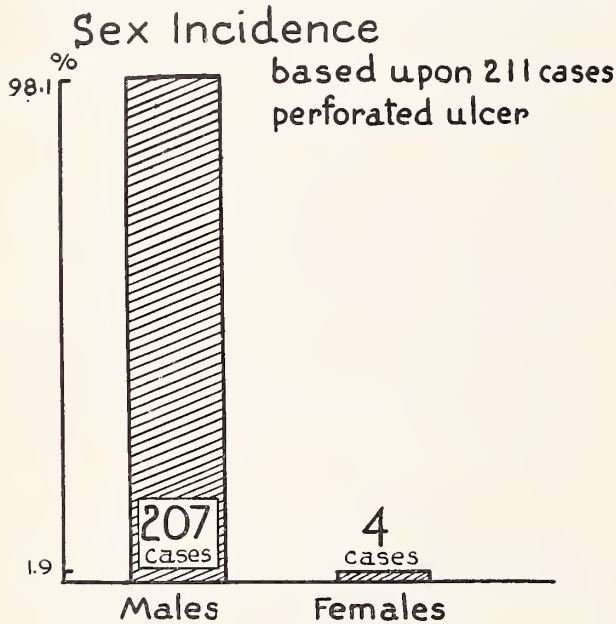
\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†Surgical Officer, Charity Hospital.

‡From the Department of Surgery, School of Medicine, Tulane University, New Orleans.

observed by others and various attempts have been made to explain it.<sup>2, 3, 4, 5</sup> The two most obvious possible explanations are increasing accuracy in diagnosis and increasing strain upon mental, physical, and dietary factors.

The sex incidence reveals a marked preponderance in the male. There were 207 (98.1 per cent) males and four (1.9 per cent) females (Graph I). This has been

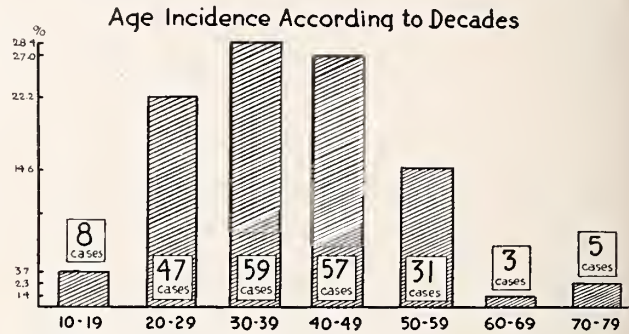


Graph I. Graphic representation of sex incidences in our cases of perforated ulcers.

generally recognized and no satisfactory explanation can be offered. Contrary to the general impression that perforated ulcer occurs rarely in the negro, the race incidence in this series reveals an almost equal frequency in white and colored patients; there were 128 (60.6 per cent) white and 83 (39.3 per cent) colored. Whereas this would seem to indicate a greater incidence in the white race, it must be realized that the incidence of total admission of white patients is greater than that of colored. Accordingly, if the respective incidences are based upon corresponding per 100,000 admissions these figures are found to be 0.0403 per cent and 0.0364 per cent.

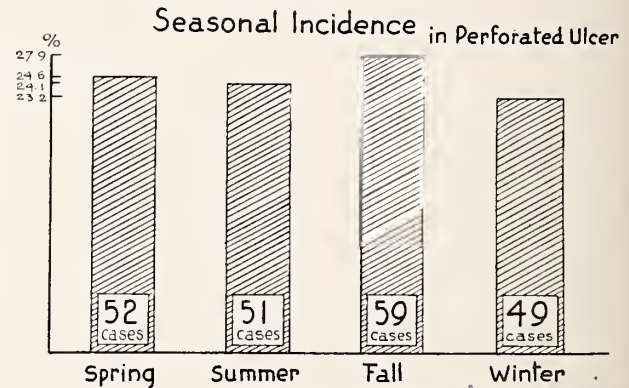
Peptic ulcer is definitely a disease of middle life and the age incidence of the complication, acute perforation, is correspondingly in this period. Thus, almost 80

per cent of the cases in this series occurred between the ages of 20 and 50 years (Graph II). Whereas some observers have



Graph II. Graphic representation of age incidence according to decades.

called attention to a distinct seasonal incidence in perforated ulcer,<sup>6, 7, 8</sup> others have reported no significant seasonal variations.<sup>9, 10, 11</sup> On the basis of the present study we are forced to agree with the latter experience (Graph III).



Graph III. Graphic representation of seasonal incidence in our cases of perforated ulcers.

CLINICAL GROUPING

In reviewing the histories of these cases it was possible to divide them into three distinct groups. The largest group, comprising 159 cases (75.3 per cent) of the 211 cases, was characterized by long histories of gastric disturbances. Usually the patients had had numerous and varied types of medical therapy, none of which was adequate. In contradistinction to the appearance of the ulcer at operation in the patients of the other groups, in these the ulcer was usually larger and more calloused with indurated edges. The second group, which included 23 cases (11 per cent), was characterized by histories of gastric dis-



tress over a relatively short period of time, usually not more than two or three weeks. The third group, embracing 29 cases (13.6 per cent), consisted of patients who gave histories of no previous gastric disturbances.

Whereas it is rare for ulcers to perforate during the period when adequate therapy is being administered, it is interesting that in this series there were three cases in which perforation occurred while the patients were in the hospital and on a Sippy regimen. There were two patients with histories of previous perforations.

The clinical manifestations presented on admission varied depending upon the length of time following the perforation. Accordingly, the cases may be grouped into three stages: First, patients observed within six hours after perforation in whom prostration is a prominent feature and before peritonitis has become manifest. Of the 211 cases, 82 (42.7 per cent) were in this group. The most prominent symptom was agonizing abdominal pain, usually constant in character. In 60 cases (28.4 per cent), the pain was generalized over the entire abdomen, in 115 (54.5 per cent) the pain was localized to the epigastrium, and in 6 (2.8 per cent) cases the pain was more marked in the right lower quadrant of the abdomen. Referred pain to one or both shoulders was present in 32 cases (15.1 per cent). Characteristically the patients in this first stage have an anxious expression, hold themselves rigid, and are afraid to move. The skin is usually cold and clammy, and in this series the temperature ranged between 97 and 98°. The pulse was usually increased in rate but had good volume. The respiration was shallow and costal in type due to fixation of the diaphragm. The characteristic board-like rigidity of the abdomen was present in the majority of these cases and is considered one of the most significant signs of ruptured peptic ulcer.

The second stage develops from six to twelve hours following the perforation. It has been described as the reaction stage or the stage of delusion because the patient begins to feel better and the condition ap-

pears to improve. The pulse becomes less rapid, the temperature rises to normal or slightly above normal, and the pain becomes less marked. However, abdominal rigidity remains prominent, respiration continues to be costal in type, and if the condition is allowed to progress without surgical intervention, the patient soon passes over into the third stage, or stage of peritonitis. In this series, there were 66 (31.2 per cent) patients in this second stage.

In the third stage are grouped those patients seen twelve hours or more after the perforation when peritonitis has developed. There were 44 (20.8 per cent) of our cases in this stage. Characteristically, abdominal rigidity becomes less marked and ileus more prominent. The pulse rate begins to rise rapidly as well as the temperature. Singultus is not infrequently present indicating diaphragmatic irritation or toxicity. The tongue and mouth become dry and dehydration becomes obvious. Later the characteristic features of marked peritonitis become very prominent. In this stage the prognosis is extremely grave.

#### DIAGNOSIS

The diagnosis in perforated gastroduodenal ulceration is usually not difficult if the condition is considered. Of the 211 cases in this series, 196 (92.4 per cent) were correctly diagnosed preoperatively. The diagnoses in the remaining 15 cases were as follows: Acute appendicitis, 9; acute hemorrhagic pancreatitis, 1; acute intestinal obstruction, 1; acute cholecystitis, 2; mesenteric thrombosis, 1; ruptured ectopic pregnancy, 1.

Aside from these surgical conditions, the differential diagnosis should also include the following medical conditions: Diaphragmatic pleurisy, ptomaine poisoning, dissecting aneurysm of the thoracic or abdominal aorta, lead colic, acute lobar pneumonia, coronary thrombosis, renal colic, and acute alcoholism. It is interesting to observe that in this series a number of the perforations occurred following over-indulgence in either alcohol or food.

Undoubtedly, one of the most reliable diagnostic aids is the demonstration of air

beneath the diaphragm by roentgenographic examination. This is shown by the fact that in 164 patients in whom this examination was made, 106 (64.6 per cent) showed air beneath the diaphragm. This diagnostic procedure was first suggested by Popper<sup>12</sup> in 1915. More recently Vaughan and Singer<sup>13</sup> have emphasized its value and reported roentgenographically demonstrable pneumoperitoneum in 54 of 63 cases. As a possible means of increasing the incidence of such positive roentgenographic evidence and consequently increasing the accuracy of diagnosis, the authors suggest the introduction of a stomach tube, aspiration of the stomach contents, and the injection of 20 to 30 c. c. of air into the stomach. Immediately following this procedure, the roentgenogram is made in the erect position. Obviously this is not advocated as a routine procedure but only in those cases in which acute perforated ulcer is suspected and in which plain roentgenograms reveal no pneumoperitoneum.

Although the ulcer is characteristically located on the anterior wall of the stomach or the duodenum near the pylorus, it is frequently difficult to determine whether it is situated on the gastric or duodenal side of the pylorus. The pyloric vein of Mayo is fre-

quently obliterated due to the distortion of the pylorus by the ulcer. In our series, the pyloric and duodenal ulcers were more frequently encountered than the gastric (Table I). This was also observed in a large series of collected cases.<sup>14</sup>

TABLE I

## GASTRIC

1. Cardiac .....	2	1.03 %
2. Lesser curvature .....	85	44.2 %
3. Greater curvature .....	5	2.5 %
Total .....	92	

## DUODENAL

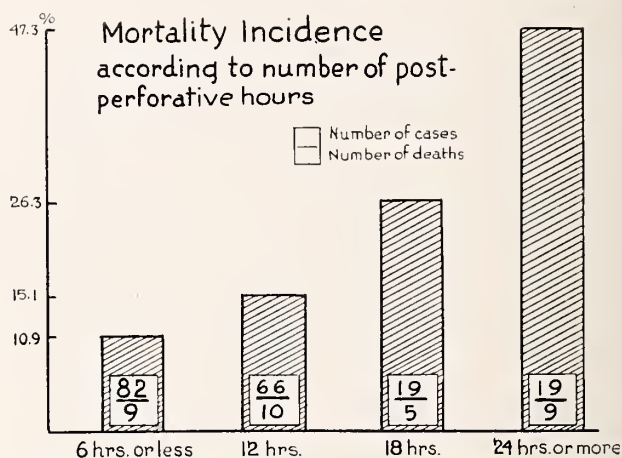
1. Pyloric .....	22	11.3 %
2. First duodenum .....	78	40.4 %
3. Second duodenum .....	1	.51 %
Total .....	101	

quently obliterated due to the distortion of the pylorus by the ulcer. In our series, the pyloric and duodenal ulcers were more frequently encountered than the gastric (Table I). This was also observed in a large series of collected cases.<sup>14</sup>

## OPERATIVE TREATMENT

The treatment of perforated gastric ulcer is immediate operation. It is our opinion

that conservative therapy has no place in the treatment of acute perforations. In the only two cases in this series in which conservative therapy was employed, death occurred. Moreover, delay in operation undoubtedly increases mortality. This has been generally recognized and is demonstrated convincingly by this series. Thus of 82 patients operated upon within the first six postoperative hours, only nine (10.9 per cent) died; of 66 patients operated upon during the second six postoperative hours, ten (15.1 per cent) died; of 19 patients



Graph IV. Graphic representation of mortality incidence in our cases according to postoperative hours.

operated upon within 12 to 18 hours after the perforation, five (26.3 per cent) died; and of 19 patients operated upon 18 hours or more after the perforation, nine (47.3 per cent) died (Graph IV).

## TYPE OF ANESTHETIC

The type of anesthetic which should be employed in these cases deserves special consideration. That this is an important factor in the mortality is clearly demonstrated by this series. Whereas of seven patients in whom epidural block<sup>15</sup> and 154 patients in whom spinal anesthesia was used, the mortality incidences were 0 per cent and 15.7 per cent respectively; of 43 patients in whom general anesthesia and five patients in whom local analgesia were employed the respective death rates were 22.2 per cent and 60 per cent. It is our opinion that a block anesthetic is preferable because complete relaxation is obtained, permitting better exposure and less trauma.

On the other hand, such relaxation is difficult to effect with a general anesthetic because of the marked rigidity present in this condition. Moreover, the toxicity of a general anesthetic is an additional burden to an already damaged liver.

#### TYPE OF OPERATION

The type of operative procedure advocated varies from simple closure to gastric resection. The American and English surgeons prefer the more conservative simpler procedures, whereas the continental European surgeons consider the radical procedures more advantageous. It is our opinion that the operation of choice in these cases is simple closure. These patients may be considered surgical emergencies; they are frequently not in the best condition for prolonged extensive procedures and delay for preparation is not permissible. Consequently the procedure which effects adequate repair of the defect most expediently seems the most rational. Obviously, this can be accomplished best by simple closure. Two rows of interrupted silk sutures are used. The sutures in the first row are placed through the edges of the ulcer and those of the second consist of inverting Lembert sutures. These should be placed so that upon tying the sutures the edges are approximated at right angles to the longitudinal axis of the stomach or duodenum. In those cases in which the edges of the ulcer are calloused and indurated, a triangular excision with approximation, according to Heintze-Miculicz principle, is considered desirable. The use of an omental graft as reinforcement is worth while if conveniently performed. In those cases in which constriction at the pylorus is likely to result, some form of pyloroplasty should be done rather than a gastroenterostomy. On the basis of clinical and experimental investigations,<sup>16-19</sup> we consider gastroenterostomy undesirable except in those persons in whom the gastric acidity is below the normal level. In this series, the type of operative procedure was indubitably an important factor in the mortality. Whereas of the 200 patients in whom simple closure was used, only 33 (16.5 per cent) died, of the seven patients in whom

the more radical procedures were employed, three (42.8 per cent) died.

#### DRAINAGE

For reasons which are not apparent, the question of drainage of the peritoneal cavity still seems to be controversial in the literature. It has been conclusively demonstrated that it is impossible to drain the peritoneal cavity in the case of generalized peritonitis. No matter what type of drain is employed, within eight to ten hours after it is placed in the peritoneal cavity it becomes completely walled off by fibrinous adhesions and all that is accomplished is drainage of the area in which the drain is situated. Consequently it seems irrational to place drains in the peritoneal cavity of patients with perforated ulcer in whom general peritonitis has developed. Equally irrational is the drainage of those persons operated upon before the peritonitis has become manifest, because if contamination of the peritoneal cavity has occurred, the drains can serve no useful purpose. On the basis of these fundamental principles we do not advocate drainage except in those patients in whom residual peritoneal abscesses develop. However, drainage of the abdominal wall should always be done because contamination of the wound almost invariably occurs. Thin strips of soft rubber dam should be used and should be placed down to the transversalis fascia and peritoneum, because if the drain is placed only in the subcutaneous tissue, the possibility of an abscess developing in the abdominal wound between the rectus muscle and the posterior rectus sheath may be overlooked. As emphasized by Ochsner,<sup>20</sup> the danger of this possibility lies in the fact that the abscess may rupture into the peritoneal cavity rather than to the outside. The importance of drainage of the wound is shown by the fact that it was by far the most frequent complication in our series, occurring in 61 cases (28.9 per cent). Moreover, there were eight patients in this group in whom death was attributable to the wound infection.

Aside from wound infection, probably the most significant complications are per-

itonitis and pulmonary affections. There were 26 patients in this series with generalized peritonitis, of whom 24 died; 16 patients with localized peritonitis, of whom nine died. Pulmonary affections occurred in 24 patients, with 17 deaths. Ileus was a complicating factor in five patients, of whom four died; hemorrhage occurred in three patients, all of whom died. Wound evisceration developed in eight patients, three of whom died. Parotitis developed in one patient who died. There were 13 patients in this series with positive Wassermanns, four of whom died, and two patients with tuberculosis and one with diabetes, all of whom died.

#### SUMMARY

1. During the ten year period, 1929 to 1938 inclusive, 2607 cases diagnosed as peptic ulcer were admitted to the Charity Hospital in New Orleans. Of this number, there were 211 cases of acute perforated ulcer, an incidence of approximately 8 per cent. A statistical analysis of these latter cases is presented.

2. Whereas over a ten year period the incidence of ulcer in general has increased approximately one and a half times, acute perforations have increased about seven times.

3. There were 207 (98.1 per cent) males and four (19 per cent) females.

4. Although there were 128 (60.6 per cent) white and 83 (39.3 per cent) colored patients, because of the proportionately greater number of total white admissions, the race incidence was relatively equal.

5. There were no significant seasonal variations.

6. The majority of patients were between 20 and 50 years of age.

7. Whereas most (75.3 per cent) of the patients had long histories of gastric disturbances, in some (13.6 per cent) the manifestations of the acute perforation were the first indications of the ulcer.

8. The characteristic clinical features in these cases are reviewed. A correct preoperative diagnosis was made in 196 (92.4 per cent) of 211 cases.

9. Roentgenographic evidence of pneu-

moperitoneum is a valuable diagnostic procedure. In 164 cases in which this examination was made 106 (64.6 per cent) showed air beneath the diaphragm. As a means of increasing this incidence we suggest aspiration of the stomach contents by a stomach tube and introduction of 20 to 30 c. c. of air into the stomach.

10. Characteristically, perforated ulcers occur on the anterior wall of the stomach or duodenum near the pylorus. In our series there were 92 gastric, 22 pyloric, and 79 duodenal ulcers.

11. The prognosis depends upon a number of factors the most important of which are: (1) The period elapsing between the occurrence of the perforation and the institution of treatment; (2) the type of anesthetic employed; (3) the type of operative procedure; and (4) the development of complications. Of 82 patients operated upon within the first six postperforative hours, only nine (10.9 per cent) died; of 66 patients operated upon during the second postperforative hours, ten (15.1 per cent) died; of 19 patients operated upon within 12 to 18 hours after perforation, five (26.3 per cent) died; and of 19 patients operated upon 18 hours or more after the perforation, nine (47.3 per cent) died.

12. Whereas of seven cases in which epidural block and 154 cases in which spinal anesthesia was used, the mortality incidences were 0 per cent and 15.7 per cent respectively, of 43 cases in which general anesthesia and five cases in which local analgesia were employed, the respective death rates were 22.2 per cent and 60 per cent.

13. The treatment of acute perforated ulcers is immediate operation. The operation of choice is simple closure. The use of an omental graft as reinforcement is desirable if conveniently performed. Whereas of the 200 patients in whom simple closure was used, only 33 (16.5 per cent) died; of the seven patients in whom the more radical procedures were employed, three (42.8 per cent) died.

14. The most frequent and serious complications are peritonitis and pulmonary affections. In our series there were 26 patients with generalized peritonitis with 24

(92.3 per cent) deaths and 16 patients with localized peritonitis with nine (56.2 per cent) deaths. Pulmonary affections occurred in 24 patients with 17 (70.8 per cent) deaths.

## REFERENCES

1. DeBakey, Michael: The physiology of peptic ulcer, *Surgery*, 2:653, 1937.
2. Zukschwerdt, L. and Eck, T.: Die Behandlung des frei durchgebrochenen Geschwüres des Magens und Zwölffingerdarmes, *Deutsche Ztschr. f. Chir.*, 232:299, 1931.
3. Thompson, H. L.: Acute perforation of peptic ulcer (An evaluation of contributory and exciting causes), *Surg. Gynec. Obst.*, 64:863, 1937.
4. Shawan, H. K.: Acute perforated ulcer, *Am. J. Surg.*, 40:70, 1938.
5. Stipa, Franco: Su 141 casi di perforazioni gastro-duodenali, *Il Policlinico (Sez. Prat.)*, 44:1564, 1937.
6. Fallis, L. S.: Perforated peptic ulcer. An analysis of 100 cases, *Am. J. Surg.*, 41:427, 1938.
7. Shawan, H. K.: Further observations on acute perforated acid ulcer of the stomach and duodenum, *J. Mich. M. Soc.*, 36:629, 1937.
8. Juster, V. de P.: Review of acute perforated ulcers for the period between 1929 and 1934, *Mary Immaculate Hospital, M. Times and Long Island M. J.*, 63:213, 1935.
9. Heim, Wilhelm: Nachuntersuchungen operierter perforierter magen- und Zwölffingerdarmgeschwüre, *Deut. med. Wchnschr.*, 63:1321, 1937.
10. Sallick, Myron A.: Late results in acute perforated peptic ulcer treated by simple closure, *Ann. Surg.*, 104:853, 1936.
11. Dineen, Paul: Acute perforated ulcers of the stomach and duodenum, *Ann. Surg.*, 90:1027, 1928.
12. Popper, H.: Die Diagnose der Darmperforation mit Hilfe der Roentgendurchleuchtung, *Deut. med. Wchnschr.*, 41:1034, 1915.
13. Vaughan, R. T. and Singer, H. A.: The value of radiology in the diagnosis of perforated peptic ulcer, *Surg. Gynec. Obst.*, 49:593, 1929.
14. DeBakey, Michael and Odom, Charles: Perforated gastroduodenal ulceration. An analysis of 211 cases and a review of the literature (in press).
15. Odom, C. B.: A review of Pages epidural anesthesia with a report of 100 cases, *New Orleans M. & S. J.*, 88:618, 1936; also *Am. J. Surg.*, 34:547, 1936.
16. Ochsner, Alton; Gage, Mims; and Hosoi, Kiyoshi: Treatment of peptic ulcer based on physiologic principles, *Surg. Gynec. Obst.*, 62:257, 1936.
17. Gage, Mims: Surgical treatment of peptic ulceration, *South. Surg.*, 6:392, 1937.
18. DeBakey, Michael: Relative protective value of alkaline duodenal juices against gastrojejunal ulceration, *Proc. Soc. Exp. Biol. & Med.*, 32:1494, 1935.
19. DeBakey, Michael: Peptic ulceration: the relative protective value of the alkaline duodenal juices, *Arch. Surg.*, 34:230, 1937.
20. Ochsner, Alton: Abdominal wall susceptibility to infection, *Surgery*, 3:783, 1938.

## DISCUSSION

Dr. Alton Ochsner (New Orleans): This presentation by Drs. Odom and DeBakey is indeed interesting, particularly from the standpoint of the many facts which they have emphasized. The increasing incidence of perforation of peptic ulcer is, as they have indicated, probably due to a number of factors. One might be justified in making the suggestion that the increased incidence of perforation of peptic ulcer is due to the increased

incidence of smoking. It is a well known fact that smoking increases gastric acidity, and perforation of a benign ulcer in the absence of acidity is virtually unknown, so that it is reasonable that the increased acidity associated with and dependent upon smoking might be a precipitating factor in the development of perforation.

The fact that most of their patients had received inadequate conservative therapy is a definite indication that a patient with a peptic ulcer, unless he takes care of himself, is likely to develop one of the complications of which perforation is one of the most tragic.

The results which Drs. Odom and DeBakey have obtained from the use of block analgesia are of interest and clearly illustrate the necessity of complete relaxation during the operation. Undoubtedly, the use of general anesthesia and the consequent straining of the patient does a great deal of harm to these individuals, but this danger can be obviated largely by the use of novocain block.

Drs. Odom and DeBakey are to be congratulated particularly upon the high incidence of correct diagnoses being made in their series.

Dr. Sidney M. Copland (New Orleans): Drs. Odom and Bakey have reached conclusions which confirm the views of the prepondering majority of surgeons, namely that simple closure with the least possible amount of manipulation is best. Yet, other surgeons, especially in Germany, but also Trout in this country, have advocated more extensive procedures as pyloroplasty, ulcer excision or gastrectomy at the time operation is performed for the ruptured ulcer. I cannot subscribe to such views.

It is important to note that after perforation has been present for many hours, there may occur a stage wherein the abdominal wall is flaccid. This phenomenon is due to a paralysis of the abdominal reflexes and musculature after having been rigid for many hours. Drainage of the abdominal wall is absolutely essential.

Another point of great interest is the number of patients presenting themselves with a ruptured peptic ulcer who have not had any previous ulcer history.

Dr. T. J. Fleming (Shreveport): One point that should be stressed which has not been brought out is this: Remember these patients are first seen by the general practitioners. The average practitioner, when he sees a patient with pain in the abdomen, gives a couple of hypodermics, the patient is relieved and goes home well satisfied. That is why the mortality has such a high rate. When relieving the patient, bear in mind there is a condition that needs hospitalization or perhaps immediate operation. The patient should be taken to the nearest hospital. The mortality is proportioned according to the number of hours that the condition is in progress. Nothing else will help the mortality rate as much as recognizing the condition as being

a surgical one and not losing time, after relieving the patient, to get him to a sanitarium.

Just a short while ago I saw a patient with intensive pain in abdomen. I got him relieved, then he did not want to leave home. I took him to the sanitarium, however, and found a ruptured ulcer. That patient's chances would have been fatal if he had been left at home until next day, whereas he had an uneventful recovery after operation. I believe in the single closure of the perforated ulcer, and drainage.

Dr. Frederick F. Boyce (New Orleans): Dr. Odom and Dr. DeBakey have covered this subject very thoroughly, but because it is of so much interest to general surgeons, a few points might be emphasized further.

The first and most important consideration in perforated peptic ulcers is that early diagnosis leads to early intervention, and early intervention produces a high percentage of cures. The mortality rises appreciably with a delay of six hours, and rises very materially with a delay of 24 hours.

There is no conservative treatment of perforated peptic ulcer. All of us have practiced conservatism and regretted that we had. I recollect one case particularly, in which I had every reason to believe that the opening was well sealed. Two days later I saw the patient on the autopsy table. I have frequently seen at operation leakage in cases in which the omentum had attempted, but incompletely, to seal the opening. Undoubtedly nature takes care of the occasional case, but the best rule is to intervene, and that without delay.

There are wide differences of opinion as to the type of treatment to be instituted for ruptured peptic ulcer. A remarkably low mortality, some 6 per cent, has been reported from Russian clinics when rather radical operations were done. Such good results with radical surgery are not being achieved in this country, perhaps because we are not seeing our patients as early. Whatever the reason, the collected statistics for the United States show that the mortality is lowest when simple closure is done, higher when closure with gastroenterostomy is done, and highest when resection is done. Other things being equal, then, we should restrict ourselves to simple closure of the perforation in most cases.

Another important consideration is that in many instances the perforation is multiple. This so frequently happens that many surgeons of wide experience have made the unqualified statement that when one perforation is found at operation, thorough search should be made for another before the abdomen is closed. I personally lost one patient through failure to follow that rule, but I do not think I shall ever lose another because I have not searched for a second perforation.

Dr. C. B. Odom (In conclusion): The radical procedures in perforated ulcer have been advocated particularly in Europe and especially by the Germans. In a series of 775 cases collected from the

German clinics by Graves, the mortality rate was 18.2 per cent. Judine, in Russia, reported 168 gastrectomies for perforated ulcer with a mortality rate of 6 per cent. These low mortality rates are in part due to the selection of better risks for the radical procedure and to the greater experience of these surgeons in the performance of this operative procedure. However, in this country, it is the consensus of the majority of surgeons that the simpler, more conservative procedure is one of choice.

In reference to Dr. Fleming's remarks, I do not think we should ever let a patient decide just exactly how he should be treated because that is the type of case that falls into the reaction group and those are the cases where mistakes are made. While morphine sometimes relieves pain, it is seldom that the rigid abdomen is relaxed by morphine.

A point worth noticing in these patients, which you will probably find helpful, is that the respiration will always be shallow in such patients. They do not breathe using the diaphragm. The diaphragm is fixed from irritation from the gastric lesion.

In reference to Dr. Boyce's remarks, there was one case in our series, with multiple perforation. Usually the thing that happens in multiple perforation is single ulceration through two separate points. It is rather unusual to have two separate ulcers. You should be on the lookout for them, however.

Two patients I have seen who were treated conservatively died. One patient was getting along splendidly and on the fourth day hemorrhaged to death. The ulcer sealed but a vessel had been plugged and gave way and the patient hemorrhaged to death.

—o—

## PEPTIC ULCERS IN THE NEGRO\*

MAURICE CAMPAGNA, M. D.

NEW ORLEANS

This statistical study of the incidence of peptic ulcer in the negro was actuated by the belief that among some of the profession the impression still prevails that this condition is rare in patients of the colored race. During my years of attendance in negro wards in Charity Hospital it has appeared to me that peptic ulcers were common enough to demand more than passing attention.

Realizing the difficulty sometimes encountered in making an accurate clinical

\*Read before the sixtieth annual meeting of the Louisiana Medical Society, Alexandria, April 26, 1939.

diagnosis it was decided to review the experiences in the institution from two viewpoints. First it was decided to survey a number of autopsies on patients who died on our service over a period of time. For this purpose 300 autopsies were selected at random and a careful analysis was made.

## AUTOPSY MATERIAL

Out of these 300 cases it was found that 35 patients or 11.3 per cent were admitted to the hospital with a major complaint of epigastric distress, that is to say that more than 11 out of every 100 died of an epigastric complaint. The autopsies showed that 13 deaths were directly caused by peptic ulcers. Expressed in percentages, 37 per cent of the patients in this series died of an ulcer either of the stomach or duodenum. The gastric ulcer predominated two to one. Four of the five duodenal ulcers had ruptured, giving a generalized peritonitis. The eight gastric ulcers were divided into pyloric and gastric proper. Three out of four of the pyloric ulcers proved to be adenocarcinomas microscopically. These three, incidentally, gave direct trauma to the abdomen as the cause of their epigastric distress.

## REVIEW OF 300 AUTOPSIES

Ulcers	Average age	Duration of illness	Ruptured per cent
Duodenal	45	6 months or less	100
Gastric	58	1 year or less	12.5

11.7 per cent of patients died of an epigastric disorder; 37 per cent of epigastric disorders proved to be peptic ulcers. The gastric ulcers predominated 2 to 1. All of the duodenal ulcers had ruptured.

The age incidence was of some interest. The average age of the patients who had duodenal ulcers was 45 years; those with gastric ulcers 58 years. As a comparison the patients who died with a malignancy of the stomach in these 300 autopsies had an average longevity of 55 years.

The duodenal ulcer history was striking in that the symptoms were rather abrupt

and the course rather rapid, no case in this series lasting more than six months. Fifty per cent of patients with gastric ulcers had symptoms lasting one year or longer.

## CLINICAL MATERIAL

Having established fairly satisfactorily from this analysis that the incidence of ulcers was more than trivial, it was thought best to review the records in the hospital covering a period of one year. Beginning July, 1937, and ending August, 1938, there was a total of 132 patients discharged with the final diagnosis of peptic ulcers. Seventy-seven of these patients had peptic ulcers and 55 were considered as duodenal. Thirty-eight per cent of the duodenal ulcers had perforated as compared to 5 per cent perforation in the gastric. The average age of the patients with duodenal ulcers in this series was 38 years, and 42 years for the gastric. A striking comparison was noted in the number of days spent in the hospital. Patients with the duodenal ulcer remained 28 days, while those with the gastric ulcers stayed only 16 days.

The mortality is rather of interest in that five died with gastric ulcers and two died of a duodenal ulcer; these two, however, also had gastric ulcers associated with the duodenal, and death was due in both of these to a rupture of the duodenal ulcers.

The gastric contents in these patients averaged 40 free hydrochloric and a total acidity of 67 (Ewald's method). The maximum gastric contents was 80 free hydrochloric and 130 total acidity.

Probably the most consistent finding was the blood pressure, which averaged 115 systolic with 90 diastolic. Several blood pressure readings which were extremely low, because of the patient's circulatory collapse, were excluded from this calculation. All of the patients, with very minor exceptions, presented dyspeptic symptoms which in no way varied from symptoms which one finds in the white race with peptic ulcers.

A finding which surprised me was that there were only two strongly positive Wassermanns in the entire series. This is

contrary to the belief of a good many physicians that syphilis plays an active part in a great majority of stomach disorders in the negro.

Only one of the deaths was an operated case, the patient being in the hospital only a few hours. Twenty-nine per cent of the patients with duodenal ulcers were operated on and 22 per cent of those with gastric ulcers. Five patients with gastric ulcers gave a history of hematemesis as compared to two with duodenal ulcer.

Apparently this type of patient is not prone to frequent hospitalization, only 15 having given a history of previous admission into the hospital, and out of this 15, 50 per cent were admitted previously for complaints other than their peptic ulcers.

Comparing the sexes, males predominated eight to one. The ages were approximately even, the men being 40 and the women 36.

#### SUMMARY

The autopsy records of 300 consecutive cases have been surveyed. Analysis has been made of 132 patients in whom peptic ulcer was discovered.

#### DISCUSSION

Dr. Chaillé Jamison (New Orleans): In opening this discussion, I wish to say that I have had to revise entirely my ideas of the frequency of ulcer in the negro. It was my impression through many years of observation that the negro rarely had duodenal ulcer, that when he had ulcer it was much more likely to be of the stomach, and usually that it was a mistaken diagnosis of ulcer and far more likely to be malignant or syphilitic. These observations of Dr. Campagna have disillusioned me. It is not entirely our fault that we held such views. For years, we transferred these patients to a surgical service and if an ulcer was really demonstrated, these individuals were sent back to us. I have always felt that this class of people, if they could be relieved surgically, were fit subjects for surgery and not medical treatment because their economic and social status was such that they could not follow the prolonged régime necessary to cure the ulcer by medical means.

Dr. Michael E. DeBakey (New Orleans): Dr. Campagna deserves commendation for correcting a false impression and demonstrating that peptic ulcer occurs almost as frequently in the negro as in the white race.

We, as surgeons, are interested particularly in the complications of peptic ulcer. Of these, per-

foration is one of the most important. Dr. Odom and I have recently made a survey of 211 cases of patients with perforated ulcers admitted to Charity Hospital during the ten year period, 1929 to 1938 inclusive. Of this number there was 128 (60.6 per cent) white and 83 (39.3 per cent) colored. This would seem to indicate a greater incidence in the white race. However it must be realized that the incidence of total admissions of white patients is greater than that of the colored. Accordingly, if the respective incidences are based upon corresponding per hundred thousand admissions these figures are found to be .0403 per cent for the white and .0364 per cent for the colored. Thus, actually perforated ulcer occurs with almost equal frequency in the two races.

Dr. Maurice Campagna (In conclusion): I want to point out an interesting fact from the statistical standpoint: Every third day a negro patient suffering with a peptic ulcer is admitted into Charity Hospital.

---

## THE DIFFERENTIAL DIAGNOSIS OF ESSENTIAL (PRIMARY ARTERIO- LAR) AND SECONDARY HYPERTENSION

MORGAN W. MATTHEWS, M. D.†  
SHREVEPORT, LA.

Brown<sup>1</sup> has estimated that 98 per cent of all persons with an elevation of blood pressure belong to a group classified by the term essential hypertension. This classification, admittedly a poor one, masks our ignorance of the true nature of the disease. Probably essential hypertension includes a number of varied pathologic conditions whose true significance has been unrecognized. Many physicians will remember that not so distant day when obscure fevers were considered, typhoid, typhoid-malaria, typhoid-pneumonia and similar vague diagnostic terms. As the knowledge of medicine progressed this obscure fever complex was broken into many distinct clinical entities. Malta fever, tularemia, Rocky Mountain spotted fever, typhus fever, blood dyscrasias, Hodgkin's disease and miliary tuberculosis are but a few notable examples.

In about two per cent of all patients with

---

†From the Department of Medicine, Highland Clinic.



an elevation of the blood pressure some definite etiologic factor may be found that is responsible for the condition. It is with these cases that this paper is primarily concerned. This article is written to emphasize the fact that all persons with an elevation of the blood pressure are not examples of so-called essential hypertension. It is to be hoped that the symptom complex that we now call essential hypertension will be further subdivided as people with an elevated blood pressure are studied in more detail.

Secondary hypertension in the present state of our knowledge may be classified as:

- (1) Hypertension dependent on disease of the kidney.
  - (a) Pyelonephritis.
  - (b) Congenital cystic kidney.
  - (c) Glomerulonephritis.
- (2) Hypertension dependent on disorders of the endocrine glands.
  - (a) Hyperthyroidism.
  - (b) Tumors of the adrenal glands.
    - (1) Those that arise from the cortex.
    - (2) Those that arise from the medulla.
  - (c) Pituitary basophilism.
- (3) Diseases of the vascular system.
  - (a) Coarctation of the arch of the aorta.
  - (b) Arteriovenous fistula.
  - (c) Aortic regurgitation.
  - (d) Periarteritis nodosa.

#### HYPERTENSION DEPENDENT ON DISEASE OF THE KIDNEY

That the kidney was in some way concerned with the production of hypertension was suspected many years ago by Richard Bright.<sup>2</sup> In 1836 he demonstrated that renal disease was frequently accompanied by an hypertrophied heart without other evident cardiac defects. This pathologic change was believed to be due to the liberation of some pressor substance by the diseased kidney. This pressor material acted in one of two ways: (1) Direct stimulation of the heart to greater activity which in turn eventually led to hypertrophy; (2)

stimulation of the arterioles and capillaries thereby increasing the peripheral resistance and rendering greater force necessary to force the blood through them. Thus Bright reasoned that the primary disease was in the kidney; that this gave rise to an altered quality of the blood which in turn caused hypertrophy of the heart.

Gull<sup>3</sup> in 1872 advanced the idea that hypertension was due to a widespread vascular pathology of which the vascular lesions in the kidney were only a part. This viewpoint has been generally accepted by most students of the problem of essential hypertension. However a few investigators, notably Volhard and Fahr,<sup>4</sup> still regard the disease as due to renal dysfunction. Recent experimental work tends to support such a hypothesis. Goldblatt and his co-workers<sup>5</sup> have shown that hypertension may be produced in dogs by partially compressing the renal artery by means of a metal clamp. Houssay and Fasciolo<sup>6</sup> repeated Goldblatt's experiment and then transplanted the ischemic kidney to another dog, anastomosing the artery and vein to the corresponding vessels in the neck of the second dog. Hypertension developed in the second animal. Prinzmetal et al<sup>7</sup> made saline extracts from the kidneys of 21 patients who had hypertension and 24 subjects with a normal blood pressure. These extracts were injected intravenously into dogs and their effect on the blood pressure noted. The mean pressor effect of the saline extracts from the hypertensive group was greater than that of the normal group. Extracts made from other organs had no pressor action. These observations are compatible with the theory that hypertension in man is due to the elaboration of an increased amount of a pressor substance by an ischemic kidney. It is not known whether the pathogenesis of human hypertension is the same as in experimental hypertension due to renal ischemia. The high incidence of arteriolar lesions in the kidney,<sup>8</sup> the persistence of vascular hypertonus following the removal of vasoconstrictor tone,<sup>5</sup> the occasional cure of hypertension following the removal of a pathologic kidney<sup>9</sup> suggest

that hypertension in human beings may result from a similar mechanism.

#### PYELONEPHRITIS

Longcope<sup>10</sup> recently discussed the relation between chronic bilateral pyelonephritis and hypertension. Hypertension was found in 50 per cent of the 22 cases of pyelonephritis that were studied. Butler<sup>11</sup> reported a series of six children who had pyelonephritis and an associated hypertension. In two of these cases the pyelonephritis was unilateral. Nephrectomy was performed and the blood pressure returned to normal. Barker and Walters<sup>9</sup> describe a patient in whom hypertension followed chronic pyelonephritis. At operation an atrophic kidney was removed. A blood pressure of 232/135 was recorded at the time of the first examination. Two months after the operation the blood pressure was 130/90. The authors expressed the opinion that judgments as regards the value of this procedure should be reserved until more time has elapsed. The exact relation of chronic pyelonephritis to hypertension is still debatable. In many cases of pyelonephritis the blood pressures are normal. However, the degree of injury to the renal parenchyma in these cases varies tremendously. Weiss<sup>12</sup> has demonstrated vascular lesions in the kidney that he believes were the results of pyelonephritis. The severity of the vascular lesions paralleled the severity of the pyelonephritis and resembled the vascular lesion seen in essential hypertension. It is possible that a hypothetical pressor substance such as is produced by Goldblatt's technic might also be produced by some other type of renal injury that tends to produce renal ischemia. Since Goldblatt's original experiments, cases of hypertension in which the renal artery was partially occluded by a number of pathologic processes, have been described. Whether or not these processes produce a Goldblatt kidney is a question that is as yet undecided.

The differential diagnosis between chronic pyelonephritis with hypertension and essential hypertension is usually an easy one. A history of repeated attacks of

pyelonephritis accompanied by a gradually increasing blood pressure is the rule. Examination of the urine may disclose the presence of organisms, pus cells, and a low specific gravity, the degree of which depends upon the amount of renal damage.

#### CONGENITAL CYSTIC KIDNEY

The majority of adults with polycystic kidney disease come to the physician because of symptoms of renal insufficiency. Aside from the palpable kidneys which in practically all clinical cases are bilateral, the clinical picture is similar to that of a chronic glomerulonephritis. The condition is thought to be a congenital one and if the affected individual escapes death at birth or in early childhood symptoms of the disease do not become manifest until about the age of 40 years. The systolic blood pressure is over 150 in over half of the patients with a renal insufficiency. A moderate cardiac hypertrophy is found in some cases.

#### GLOMERULONEPHRITIS

The blood pressure in acute and subacute glomerulonephritis is usually moderately elevated, the systolic blood pressure being increased as a rule 20 to 40 mm. In mild cases no elevation occurs or persists for only a few days. The persistence of hypertension after the other symptoms are subsiding indicates the development of chronic nephritis. The characteristic clinical findings are an abnormal urine (albuminuria, casts, hematuria, oliguria), hypertension and occasionally renal insufficiency. These findings are rarely to be confused with the usual case of essential hypertension.

In chronic glomerulonephritis difficulty may be experienced determining which of the two conditions, hypertension or glomerulonephritis, is primary. The differentiation may be readily made if the patient has been under observation for a number of years, but may be very difficult if the patient is first seen after uremia develops. In chronic glomerulonephritis there will be a history of an acute attack of nephritis with exacerbations; the blood pressure gradually rising as renal insufficiency develops. Anemia develops early in the disease. In pri-

mary hypertension the elevation of the blood pressure appears early in the disease and renal insufficiency is a late manifestation. Secondary anemia is rarely a problem unless complicated by renal insufficiency. Further points of differentiation are the degree of cardiac hypertrophy, the degree of hypertension and the character of the urine. Any marked degree of cardiac hypertrophy is usually absent in nephritis and is the usual finding in severe cases of essential hypertension. The degree of elevation of blood pressure is important. In nephritis the range of the systolic blood pressure is usually from 160 to 200 while in essential hypertension systolic blood pressures above 200 are not an infrequent finding. Examination of the urine cannot always be depended upon to differentiate the two conditions. Red blood cells, large amounts of albumin and casts may appear in the urine of patients with essential hypertension secondary to heart failure. It may be necessary to wait until the chronic passive congestion is relieved before the two diseases can be accurately separated. In the usual case of essential hypertension large amounts of red blood cells and casts other than hyaline and granular ones are unusual. Fortunately in essential hypertension uremia is a cause of death in only 8.6 per cent of cases so that this condition will be an infrequent cause of confusion.

Although the average severe case of chronic glomerulonephritis terminates in uremia, Mosenthal and Lander<sup>13</sup> have pointed out that many such persons die with a vascular complication such as cerebral hemorrhage or thrombosis and coronary occlusion. Forty-five per cent of their patients with chronic glomerulonephritis who had little or no renal insufficiency had a marked or moderate elevation in blood pressure.

#### HYPERTHYROIDISM

The systolic blood pressure in hyperthyroidism is usually moderately elevated, the usual range being from 140 to 160. The diastolic blood pressure is apt to be lower than normal with a resultant high pulse pressure. A high pulse pressure in the absence of

aortic regurgitation is said to be highly suggestive of hyperthyroidism. Marked elevation of the blood pressure is most unusual in hyperthyroidism. The characteristic signs and symptoms of hyperthyroidism usually enable a differentiation to be made between this condition and essential hypertension. It should be pointed out, however, that the differentiation between the two conditions may at times be quite difficult. Many persons with essential hypertension are emotionally unstable, nervous, irritable, excitable and complain of palpitation, rapid heart action, vasomotor disturbances and many other symptoms highly suggestive of the hyperthyroid state. In addition, the basal metabolic rate in many of these cases of essential hypertension is elevated, the average being about +15 per cent. In severe cases the elevation in the basal metabolic rate may be as high as +25 per cent. In such cases the characteristic signs and symptoms of hyperthyroidism are usually lacking; these are a history of weight loss in spite of increased intake of food, heat intolerance, which is usually an outstanding symptom, and difficulty in climbing stairs due to a weakness of the quadriceps muscles. A persistently elevated pulse rate above 100 per minute in the absence of fever is highly suggestive of hyperthyroidism. The characteristic nervous alert appearance of these persons with their numerous purposeless movements are unforgettable once they are seen. The skin looks and feels warm and moist. A mistaken diagnosis of hyperthyroidism in cases of essential hypertension will rarely be made if these points are kept in mind.

#### TUMORS OF THE ADRENAL GLANDS

Tumors of the adrenal glands capable of producing hypertension are two in number, one that originates in the adrenal cortex producing the so-called adrenal cortical syndrome and paragangliomas that arise from the medulla producing a paroxysmal type of hypertension. It is important that both of these tumors be correctly diagnosed because surgical removal results in a prompt regression of symptoms. Early recognition is im-

portant in the adrenal cortical tumors because the majority of the tumors are malignant. However, in the early stages of the disease the tumor is definitely encapsulated and may be removed without danger of the growth recurring.

#### TUMORS THAT ARISE FROM THE ADRENAL CORTEX

A hyperfunctioning tumor of the adrenal cortex produces signs and symptoms that are dependent upon the sex of the individual. Adrenal tumors in man are extremely rare, only five cases being reported in the literature. In the adult male the growth results in a loss of masculinity and an appearance of femininity. The breasts enlarge and the habitus takes on feminine contours, the testes and penis decrease in size and cease to function as organs of reproduction.

When the disease occurs among women the secondary sex characteristics become masculine in character. Thus the menses cease, the breasts decrease in size, a beard appears, the hair of the extremities, abdomen and back increases in amount, its distribution becomes masculine in type, and the clitoris undergoes hypertrophy.

In addition to changes in the secondary sexual characteristics there are important associated signs that are common to both sexes. Among these are a florid complexion, purplish striations of the skin, acne, hypertension, diabetes, osteoporosis, weakness and a "buffalo" type of obesity.

Adrenal cortical tumors must in turn be differentiated from pituitary basophilism, arrhenoblastoma of the ovary, tumors of the thymus and physiologic variants with an essential hypertension. Ovarian and thymic tumors practically never produce diabetes, hypertension and osteoporosis. Finally in addition there are many apparently normal women, the so-called physiologic variants who have varying degrees of hirsutism, obesity, amenorrhea and hypertension for which no adequate basis can be found. Pituitary basophilism is differentiated from adrenal cortical tumors only with extreme difficulty. The course of the two diseases is said to be quite different; in the case of pituitary basophilism being slowly progres-

sive and fairly constant, while in adrenal tumors it is variable and rapid. In the average case the two conditions cannot be differentiated from one another. Consequently every case of pituitary basophilism should be examined with a suspicion that the disease may originate in the adrenal gland. For more detailed information the reader should consult articles on the subject by Walters, and Kepler,<sup>14</sup> Walters, Wilder and Kepler<sup>15</sup> and Kepler<sup>16</sup>.

#### TUMORS THAT ARISE FROM THE ADRENAL MEDULLA

Paragangliomas of the adrenal gland produce a paroxysmal type of hypertension accompanied by vasomotor phenomena such as pallor, tachycardia, headaches and apprehension. The blood pressure in the interval between the paroxysms is usually within normal limits. The paroxysms are produced by undue physical and mental exertion and may be precipitated experimentally by the "cold test" (immersion of the hand in water at a temperature of 4° C. for one minute). During a paroxysm the rise in systolic blood pressure is great, usually being well above 200, often going as high as 260 to 280. These tumors are benign, and surgical removal results in a permanent cure of the hypertension. These tumors are quite rare, only four such tumors being recorded in the files of The Mayo Clinic. C. H. Mayo,<sup>17</sup> the Porters<sup>18</sup> and Shipley<sup>19</sup> have reported cases with this condition.

#### PITUITARY BASOPHILISM

Pituitary basophilism, or more properly Cushing's syndrome, was formerly attributed to a basophilic adenoma of the hypophysis. However, later reports indicate that some of the adenomas are chromophobic and over 50 per cent of the cases show no hypophyseal tumor of any kind. The disease produces a syndrome identical with that seen in tumors of the adrenal cortex. Surgery offers the only certain method to differentiate the two diseases. When surgery is undertaken both adrenal glands should be explored. Because the tumor is most often found on the left side, this gland should be the first to be operated on. Intra-

venous pyelography may indicate the side of the lesion in some cases.

#### COARCTATION OF THE ARCH OF THE AORTA

The term coarctation of the arch of the aorta implies a partial or complete occlusion of the lumen of the aorta. When it affects an adult the occlusion occurs at or near the insertion of the ductus arteriosus, which is usually just distal to the origin of the left subclavian artery. The condition is not as rare as is generally suspected, occurring about once in every 1,500 autopsies.

The diagnosis is not a difficult one if the possibility of the condition is kept in mind. According to Baker and Sheldon<sup>20</sup> the cardinal signs of the condition may be summarized as follows:

(1) A forceful bounding pulse is noted in the vessels of the neck and upper extremities, and an absence or marked diminution of pulsation in the vessels of the lower extremities. If a feeble pulse is detected over the femoral arteries it is asynchronous with the radial pulse.

(2) A palpable aortic pulsation is absent in the abdomen, whereas a forceful systolic thrust is present in the suprasternal notch.

(3) There is a hypertension in the brachial arteries, usually with a definite pulse pressure and a much lower blood pressure in the popliteal arteries. This is a reversal of the normal state.

(4) Evidence of a well developed collateral circulation is found. Large tortuous anastomosing arteries may be seen and palpated in the interscapular, suprascapular and axillary regions, and less often are conspicuous over the anterior aspect of the thorax. The internal mammary and the deep epigastric arteries are occasionally visible and palpable. These collateral vessels transmit a systolic murmur and occasionally a fine accompanying thrill.

(5) A murmur is usually heard over the aortic area and has its maximum intensity along the left border of the sternum. This murmur is frequently altered by congenital or acquired valvular lesions. Cardiac enlargement is present in about three-fourths of the cases.

(6) Roentgenologic signs are: (1) A bilateral erosion of the inferior borders of the ribs; (2) an absence of the prominent aortic knob usually associated with a hypertension; (3) a dimpling of the descending aorta which is seen best in the left oblique position.

(7) The presence of other congenital anomalies, cardiovascular and otherwise. A history suggestive of leakage from a congenital cerebral aneurysm should suggest coarctation of the arch of the aorta because of the frequent association of the two conditions. Stickney and Dry<sup>21</sup> have written an interesting article on the subject.

#### ARTERIOVENOUS FISTULA

This term applies to an abnormal communication between an artery and a vein. These may occur anywhere in the body and may be congenital or acquired through trauma. Symptoms that result from the lesion depend upon the degree of communication between the artery and vein. In the usual case of arteriovenous fistula the blood pressure is normal, however, in an occasional case it is slightly elevated. These latter cases should be differentiated from early and mild essential hypertension. The outstanding diagnostic points of an arteriovenous fistula are as follows: (1) Over the site of the fistula there is a continuous bruit and a purring thrill throughout the cardiac cycle with systolic intensification. This thrill and murmur may be made to disappear when the fistula is closed by digital pressure. In some cases, especially those of congenital origin, the thrill and murmur are absent. In such cases the condition may be suspected because of an increased girth and length of the affected extremity, increased warmth of the skin in the region of the fistula, a higher than normal oxygen content of the venous blood taken below the site of the aneurysmal communication and finally by the presence of gangrene and varicose ulcers in the distal part of the limb. Any young individual with varicose veins should be suspected of having an arteriovenous fistula. Many unsuccessful operations have been performed on such patients.

(2) The systolic blood pressure is usually

normal or slightly above normal, while the diastolic pressure is considerably below normal. Pressure over the fistula produces a rise in the systolic and diastolic blood pressure, the latter being the most marked. (3) Closure of the fistula by digital pressure results in an immediate drop in pulse rate. Reviews on the subject may be found in papers by Pemberton<sup>22</sup>, Pemberton and Saint<sup>23</sup>, Horton and Ghormley<sup>24</sup>.

#### AORTIC REGURGITATION

The blood pressure findings in aortic regurgitation are rather characteristic, the systolic pressure being increased and the diastolic lowered. The normal range between the systolic and diastolic pressures (pulse pressure) ranges from 30 to 40. In aortic regurgitation this may be doubled or trebled. A high pulse pressure also occurs in hyperthyroidism and some cases of arteriovenous aneurysm. The other signs of aortic regurgitation make the differential diagnosis between these conditions and in addition essential hypertension not difficult in the average case. In some cases of aortic regurgitation the diastolic murmur may be so faint that it may be missed entirely. It is usually heard best in the third or fourth interspace to the left of the sternum while the patient is sitting upright and leaning forward.

#### PERIARTERITIS NODOSA

Periarteritis nodosa is an extremely rare disease that is usually undiagnosed until a postmortem examination is made. A combination of the following signs and symptoms should at least suggest the presence of the condition: a peripheral neuritis multiple in its distribution, a renal lesion simulating a nephritis, hypertension, indefinite cerebral manifestations resembling an encephalitis, changes in the eyegrounds in the form of exudates, hemorrhages and blurring of the disc margins. These symptoms are due to a widespread necrotizing and obliterating vascular lesion that affects any part of the body. This fact explains its protean manifestations. Curtis and Coffey have stated that it is surprising that the number of instances of hypertension are not greater in a disease that produces so great a vascular

resistance. The clinical diagnosis of periarteritis nodosa should be verified by means of biopsy. The specimen is best taken from a lesion in the skin or a tender spot in an affected muscle. Kernohan and Woltman<sup>25</sup> have written an interesting article on the subject.

#### SUMMARY AND CONCLUSIONS

There are at least eleven conditions that are capable of producing an elevation of blood pressure. In some instances these may be confused with so-called essential or primary hypertension. It is important that primary and secondary hypertension be differentiated from one another, because in some instances of secondary hypertension as that due to hyperthyroidism, tumors of the adrenal gland and arteriovenous fistula, successful surgical removal affords complete relief. Although secondary hypertension accounts for only a small proportion (two per cent) of the total cases of hypertension, it is logical to assume that this figure will grow progressively larger as the disease complex essential hypertension is further broken down into separate and distinct clinical entities.

#### REFERENCES

1. Brown, G. E.: Essential hypertension, *Med. Clin. North America*, 19:517, 1935.
2. Bright, Richard. Quoted by Keith, N. M.: Pathologic studies of the arterial system in severe hypertension, *Proc. Staff Meet. Mayo Clinic*, 14:209, 1939.
3. Gull, W. W. Quoted by Keith, N. M.: Reference 2.
4. Vollhard, F., and Fahr, K. T. Quoted by Keith, N. M.: Reference 2.
5. Goldblatt, H., Lynch, J., Hanzal, R. F. and Summerville, W. M.: Studies on experimental hypertension. Production of persistent elevation of the systolic blood pressure by means of renal ischemia, *J. Exper. Med.*, 59:347, 1934.
- Goldblatt, H.: Studies on experimental hypertension, *Ann. Int. Med.*, 11:69, 1937.
6. Houssay, B. A., and Fasciolo, J. C.: Experimental hypertension (Letter), *J. A. M. A.*, 109:2002, 1937.
7. Prinzmetal, M., Friedman, B., and Abramson, D. I.: The nature of arterial hypertension with special reference to the kidney, *Ann. Int. Med.*, 12:1604, 1939.
8. Cain, E. F.: Malignant hypertension: The histologic changes in the kidneys, *Arch. Int. Med.*, 53:832, 1934.
9. Barker, N. W., and Walters, W.: Hypertension associated with unilateral chronic atrophic pyelonephritis: Treatment by nephrectomy, *Proc. Staff Meet. Mayo Clinic*, 13:118, 1938.
10. Longcope, W. T.: Chronic bilateral pyelonephritis: Its origin and its association with essential hypertension, *Ann. Int. Med.*, 2:149, 1937.
11. Butler, A. M.: Chronic pyelonephritis and arterial hypertension, *J. Clin. Invest.*, 16:889, 137.
12. Weiss, S., and Parker, F. Jr.: Vascular changes in pyelonephritis and their relation to arterial hypertension, *Trans. Assn. Amer. Physicians*, 63:60, 1938.

13. Mosenthal, H. C., and Lander, H. H.: The development and importance of hypertension in Bright's disease, *Ann. Int. Med.*, 12:1449, 1939.

14. Walters, W., and Kepler, E. J.: Adrenal cortical tumors and their treatment. A study of seven operated cases, *Ann. Surg.*, 107:881, 1938.

Walters, W., and Kepler, E. J.: Surgical lesions of the adrenal glands, *J. A. M. A.*, 111:1061, 1938.

Walters, W., and Kepler, E. J.: Hyperfunctioning lesions of the ductless glands, *West Virginia Med. J.*, 34:550, 1938.

15. Walters, W., Wilder, R. M., and Kepler, E. J.: The suprarenal cortical syndrome with presentation of ten cases, *Ann. Surg.*, 100:670, 1934.

16. Kepler, E. J.: Diseases of the adrenal glands. A review with special reference to the clinical aspects, *Arch. Int. Med.*, 56:105, 1935.

17. Mayo, C. H.: Paroxysmal hypertension with tumor of retroperitoneal nerve. Report of a case, *J. A. M. A.*, 89:1047, 1927.

18. Porter, M. R., and Porter, M. F. Jr.: Report of a case of paroxysmal hypertension cured by removal of an adrenal tumor, *Surg. Gynec. Obst.*, 50:160, 1930.

19. Shipley, A. M.: Paroxysmal hypertension associated with tumor of the suprarenal, *Ann. Surg.*, 90:742, 1929.

20. Baker, T. W. and Shelden, W. D.: Coarctation of the aorta with intermittent leakage of a congenital cerebral aneurysm. Report of a case, *Am. J. Med. Sci.*, 191:626, 1936.

21. Stickle, J. M. and Dry, T. J.: Coarctation of the arch of the aorta. Report of a case with slight aortic constriction, *Proc. Staff Meet. Mayo Clinic*, 14:265, 1939.

22. Pemberton, J. de J.: Arteriovenous aneurysm, *Arch. Surg.*, 16:469, 1928.

23. Pemberton, J. de J. and Saint, J. H.: Congenital arteriovenous communications, *Surg. Gynec. Obst.*, 46:470, 1928.

24. Horton, B. T., and Ghormley, R. K.: Congenital arteriovenous fistulae of the extremities visualized by arteriography, *Surg. Gynec. Obst.*, 60:978, 1935.

25. Kernohan, J. W. and Woltman H. W.: Periarthritis nodosa. A clinicopathological study with special reference to the nervous system, *Arch. Neurol. & Psychiatry*, 39:655, 1938.

important consequences in the treatment of this disorder.

In order to employ rational therapy in hypertension, it is imperative at the outset that there should be a correct determination of the clinical stage of this condition. Hypertension may be the outcome of varied causes. This discussion will deal with essential hypertension. Not alone the clinical syndrome, but the cause, the course and the consummation of hypertension must be briefly alluded to if a proper evaluation of therapy, its rationale, its possibilities, its shortcomings and its disadvantages are to be obtained.

#### ESSENTIAL HYPERTENSION

Essential hypertension is a syndrome in which the normal blood pressures of 150-160 systolic and 90 mm. of mercury diastolic are exceeded. Of insidious onset and variable course, it is for a long time asymptomatic and its presence only accidentally discovered. Early symptoms are few, vague and mild. Periods of remission occur in which progress is exceedingly slow to stationary, but the advance of the disease is inevitable. Exacerbations follow and during these periods, symptoms few to many, and mild to severe, are present. Early, the blood pressure is moderately elevated and labile. Normal fluctuations occur under basal conditions, but as the disorder continues, the pressure tends to higher elevations, fewer fluctuations and more fixation. The heart, brain, kidneys, retina and vascular apparatus reveal no impairment of adequacy in the early stages but later, dysfunction and finally failure of one or more of these vital organs results. The symptomatology grows progressively more constant and distressing and eventually invalidism and death are the outcome. Meakins<sup>1</sup> states the cause of death is the heart in 65 per cent, the brain in 25 per cent, and the kidney in 10 per cent.

#### CLASSIFICATION OF HYPERTENSION

Patterned after Keith and his co-workers,<sup>2</sup> Morlock,<sup>3</sup> and Davis and Barker,<sup>4</sup> is a classification of hypertension into four groups, based on the stage of the disease.

Group 1—Normal hyperreactors and ex-

## CONCEPTS OF THE TREATMENT OF HYPERTENSION

I. L. ROBBINS, M. D.†

NEW ORLEANS

The treatment of hypertension continues to be of paramount importance. That this perplexing problem is one to justify a feeling of futility, is borne out by the experience of all clinicians. Yet, in recent years, two important developments, one in experimental pathology and the other in surgery, heralding a new epoch in hypertensive therapy, bid fair to have far reaching and

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†From the Department of Medicine, School of Medicine, Tulane University.

tremely early cases. The prognosis is excellent.

Group 2—Early to moderately advanced cases. The prognosis is good. Groups 1 and 2 have no anemia.

Group 3—Moderately advanced to advanced cases. Anemia occurs in 50 per cent of these. The prognosis is serious.

Group 4—Advanced cases. Anemia occurs in 65 per cent of these. This group includes the malignant hypertensives. The prognosis is bad.

Of the mild cases, all ages, comprising Groups 1 and 2, 90 to 100 per cent have no symptoms or are readily relieved. Seventy-five per cent of the moderate cases, all ages, have no symptoms or can be relieved. Of the severe cases over 45 years of age, 30 per cent may obtain a substantial fall in blood pressure; 40 per cent symptomatic relief, and 30 per cent with marked and irreversible changes, no possible amelioration of symptoms. While this grouping clarifies the problem it must be understood that concomitant arteriosclerosis of the aorta and large vessels will alter the course and profoundly influence the effect of treatment. But there are additional factors necessary for a proper appreciation of the worth of therapy. It is important to review the modern concept of the cause of hypertension, the nature of the agent responsible for the rise in mean arterial pressure, and the underlying basis for hypertension in man.

#### PATHOGENESIS

Virtually all authorities<sup>21,22</sup> are agreed that the rise in arterial pressure is due to a more or less generalized vasoconstriction of the small arteries and arterioles. This vasospasm is due to an overaction of the vasomotor nerves and a chemical factor; later in the disease, an added local degenerative fault. The origin of the vascular hypertonus is chemical. The vasomotor action affects the level of the blood pressure to a marked degree but its lack does not eliminate the hypertonia of hypertension. It has, however, a direct and decisive bearing upon treatment. The only benefit to be procured from treatment follows the release of vasomotor tone which

in turn causes a diminution in vasoconstrictor tone and so produces a fall in blood pressure, but does not affect the spasm responsible for the hypertension. Goldblatt,<sup>5</sup> by the constriction of the main renal vessels in dogs, has been able to simulate both the benign and the malignant phase of essential hypertension in man. This renal ischemic hypertension is chemical in origin. It is important that no operation upon the sympathetic nervous system has been able to reduce this hypertension to normal.

Scott<sup>6</sup> believes that the cause of essential hypertension, in the light of Goldblatt's researches, is arterial and arteriolar sclerosis of the renal vessels. This results in ischemia which, by a humoral mechanism, produces vasoconstriction in the peripheral arterioles and thus an elevation in systemic blood pressure. The clinical course of hypertension is conditioned by the progress of the sclerotic vascular changes in the kidneys. A slow development favors hypertension but is not rapid enough to impair renal excretory function; hence, most patients die of heart failure or cerebral accidents before uremia develops. If the vascular change is rapid, the clinical picture is that of malignant hypertension. The kidney function is greatly impaired and uremia occurs. Goldblatt and others have demonstrated that the removal of the ischemic kidney results in a return of the blood pressure to a normal level. Therapy must be based on etiology and an understanding of the pathogenesis of the disease. On any other basis, treatment is illogical and inconsequential.

#### MEDICAL TREATMENT

Meakins feels that "treatment is a source of much discouragement" and Stewart<sup>7</sup> asserts that "there is little new to add." Stieglitz<sup>8</sup> offers the opinion that "the innumerable methods of therapy are proof that none are wholly good." Though the physician cannot cure, he can often relieve and always give comfort and this constitutes good medical practice. Treatment of hypertension may be considered under five major divisions:

1. Prophylaxis.



2. Medical treatment of hypertension, *per se.*
  - a. In general.
  - b. In crises (paroxysmal high rises in blood pressure).
3. Treatment of the cause of hypertension.
4. Treatment of the effects of hypertension.
5. Surgical treatment of hypertension.

The criteria for the diagnosis of hypertension are difficult to ascertain. The variability of the blood pressure under conditions of rest, activity, emotional stress, physical fatigue, seasonal and postural changes, coupled with the insidiousness of the onset and the long asymptomatic course, makes it extremely difficult to place the proper value on any therapy employed in hypertension.

Prophylaxis concerns itself with the removal of physical disabilities and faulty habits of living. All methods removing the stresses and strains of environmental tensions will accrue to the patient's benefit. Eradication of foci of infection and prevention of infectious and contagious diseases of childhood must protect the kidney and so decrease the potential threat to the renal vascular apparatus later in life and defer the tendency for hypertension to become clinically manifest.

*Diet.* The diet should be wholesome and well balanced and calorically adequate. Salt and proteins are not contraindicated. Liberal use of fluids and foods rich in iron for anemia are desirable.

*General Measures.* Proper rest, regular bowel function, reasonable exercise, moderate climates are all conducive to the maintenance of arteriolar relaxation. Moderation in all things is the objective to be attained. Patients accustomed to the use of alcohol and tobacco may continue to use them in small amounts. Untoward effects call for their discontinuance.

*Physiotherapy.* Hydrotherapy, massage and diathermy have some relaxing value. Lasting and effective reduction of blood pressure and relief of symptoms have been reported by the use of x-ray irradiation of the pituitary and adrenal glands.

*Drugs.* The opinion of clinicians concerning drugs is not encouraging. Stewart states, "I am of the opinion that none of the drugs directed towards lowering blood pressure are of benefit." This is the studied conclusion of most physicians. The important drugs comprise two classes: (1) Vasodilators and (2) sedatives.

The ideal vasodilator remains a pious wish awaiting fulfillment. It should be one that is simple, non-toxic, possessing a steady, moderate, relaxing power and capable of use over an extended period of time. The nitrites are of little value in general management. However in the paroxysms of high blood pressure (the crises) they have a definite place. The prompt and sharp reduction is often sufficient to prevent serious vascular accidents. Stieglitz advocates bismuth subnitrate as a mild but enduring vasodilator. He obtained satisfaction in 77 per cent of his cases. Others have failed to confirm this finding. The iodides are still considered to be of some value. Friedman et al<sup>9</sup> obtained a decided fall in blood pressure in 18 of 52 women.

Recently there has been a resurgence of popularity in thiocyanate therapy. The thiocyanates, sodium and potassium, are vasodilators. The dose varies greatly, ranging from 0.1 to 0.45 gram daily, with a maintenance dose of 1.0 gram a day to 0.3 gram a week. Barker<sup>10</sup> states the drug is safe, if the blood cyanate level is maintained at 8 to 14 mgm. per 100 c. c. of blood. It is at this concentration that the drug's hypotensive effect is optimal. The toxic effect is accumulative. The mild toxic symptoms are weakness and fatigue, cramping pains and mild gastrointestinal complaints. Barker insists that "without blood cyanate determinations, the drug should not be used. It has dangerous possibilities." The margin of safety between the therapeutic and toxic dose is so close or overlapping that Bastedo<sup>11</sup> feels that the drug should be considered *sub judice*. Masie, Ethridge and O'Hare,<sup>12</sup> under carefully controlled conditions, treated 14 patients with uncomplicated vascular hypertension. The average fall in blood pressure with sodium thiocyanate was 66 to 21 systolic

and 33 to 8 diastolic, with appreciable disappearance of symptoms. After discontinuance of the drug the previous blood pressure and symptomatology returned.

The sedatives are probably the most valuable drugs in the production of arteriolar relaxation. The bromides and barbiturates are efficient in the relief of restlessness and anxiety in patients with excessive emotional reactions. Barbiturates, according to Stieglitz, decreased arterial tension in about 80 per cent of the patients treated.

*Psychologic therapy.* This is considered to be of the greatest importance in the hypertensive regimen. Physicians of experience affirm that the proper pursuit of this invaluable therapeutic approach is conducive of good and prolonged vasodilator effects. The doctor must be tactful and kindly. He must gain the confidence and instill assurance and equanimity in his patients. Menninger<sup>13</sup> feels that "in the search for definiteness in biological signs, it is difficult to remember that precision in measurement is not equivalent to accuracy in interpretation. I have often wondered," he continues, "if the introduction of the sphygmomanometer has not killed more patients than it has saved. Numbers have become more important than meaning." Psychology, in Menninger's experience, has been effective in some cases of chronic hypertension. Ayman,<sup>14</sup> after a careful analysis of 35 research projects in the treatment of hypertension, noted the uniformly successful results despite the diversity of procedures. Failure was almost nil. Convinced of a common factor unrecognized by the investigators he studied the effect of a placebo (dilute hydrochloric acid). Using minimal criteria for a diagnosis of hypertension, 40 patients were treated and followed; 82 per cent showed definite improvement as evidenced by blood pressure fall and symptomatic relief.

The belief that it is dangerous to reduce high blood pressure because it is a compensatory mechanism designed to maintain kidney, heart and brain function is erroneous. Renal efficiency is not dependent upon hypertension. It is the relief of renal

vascular constriction that improves function.<sup>15</sup> It is of interest to note in recent articles by Jacobson<sup>16</sup> a description of what he terms "progressive relaxation." Its objective is the training of the individual to relax and eliminate tension. To quote Jacobson, "the findings furnish foundation for the view that high blood pressure in hypertension can result in part from habitual activity involving hypertensive states in the skeletal musculature." The method appears to possess qualities that may be valuable.

*Treatment of the cause of hypertension.* Concerning this, it must be obvious to all that the knowledge of the nature of the mechanism, at the present time, makes this impossible.

*Treatment of the effects of hypertension.* The discussion will not deal with this phase of the subject. Suffice it to say, that the same established methods as are used in the treatment of congestive heart failure, cerebral and coronary vascular accidents and uremia, due to other causes, are employed.

#### SURGICAL TREATMENT

In recent years surgery has assumed a most significant place in the treatment of essential hypertension. The failure of medical measures and the rapid progress of the disease in some individuals is a sufficient and justifiable reason for surgery. Though still in an experimental stage its encouraging results and low mortality make its continuance most desirable. To establish its real worth a careful selection of cases and prolonged postoperative observations are necessary to achieve the proper perspective. Craig<sup>17</sup> observes that "operation seems most efficacious in the definite vasospastic type of hypertension. As an average rule the patient must be under 50 years of age and the hypertension as of groups 2 or 3." Smithwick<sup>18</sup> in a review of this subject found that good results were obtained only in 40 or 50 per cent of favorable cases and in only 5 to 10 per cent of the advanced cases, but in some of these symptomatic relief was marked. White<sup>19</sup> notes that "it has not yet been established that the expected duration of life in hypertensive patients can

be prolonged, even if the blood pressure is reduced." Goldblatt's<sup>20</sup> experiences convince him that hypertension in man "is produced by the constriction or the thickening of the wall of the arterioles of the kidney." It is conceivable, at least that some of these vessels are merely in spasm and still under the influence of the nervous system and that they are therefore in a reversible state and can become dilated as a result of removal of the vasoconstrictor effect. The improvement that occurs from the operation, in all probability is, apart from the effect of the enforced rest, due to the improvement of the circulation through the kidneys and not to any effect on the rest of the vasomotor apparatus of the abdomen. Another important development in the surgery of hypertension that may have great potentialities, is an outgrowth of the renal ischemic hypertension of Goldblatt. Recalling that the ischemic kidney in animals results in a fall of the high blood pressure to normal, several cases have been reported of the extirpation of a diseased kidney in patients with pyelonephritis and arteriosclerosis with hypertension and in whom the blood pressure made a prompt return to normal.

## SUMMARY

The proper therapy in hypertension must be based upon the pathogenesis and the clinical course of this syndrome. Only then can the physician have a correct understanding of the true value of the therapeutics he employs. There is no specific nor curative agent but much can be done to relieve the patient, even in the last stages of the disorder. The experience of physicians concerning treatment is not encouraging but the recent developments in pathology and surgery hold forth the possibility of new and far reaching accomplishments in the ultimate conquest of this serious malady.

## REFERENCES

1. Meakins, J. C.: *The Practice Of Medicine*, 2nd ed., C. V. Mosby Co., St. Louis, 1938.
2. Keith, N. M., Wagener, H. P., Barker, N. W.: Some different types of essential hypertension: Their course and prognosis, *Am. J. Med. Sci.*, 197:332, 1939.
3. Morloek, C. H.: Arterioles of the pancreas, liver, gastrointestinal tract and spleen in hypertension, *Arch. Int. Med.*, 63:100, 1939.
4. Davis, L. and Barker, M. H.: The surgical problem of hypertension, *Surgery*, 107:899, 1938.

5. Goldblatt, H.: Experimental observations on the surgical treatment of hypertension, *Surgery*, 4:483, 1938.
6. Scott, R. W.: Hypertension a century after Bright, *J. A. M. A.*, 111:2460, 1938.
7. Stewart, H. J.: The management of hypertension, *Bull. N. Y. Acad. Med.*, 14:681, 1938.
8. Stieglitz, E. J.: *Abnormal Arterial Tension*, National Medical Book Co., N. Y., 1935.
9. Friedman quoted by Bastedo, W. A.: *Materia Medica, Pharmacology, Therapeutics and Prescription Writing*, W. B. Saunders, Philadelphia, 1937.
10. Barker, M. H.: The blood cyanates in the treatment of hypertension, *J. A. M. A.*, 106:762, 1936.
- Wald, M. H., Lindberg, H. A. and Barker, M. H.: The toxic manifestations of the thiocyanates, *J. A. M. A.*, 112:1120, 1939.
11. Bastedo: see ref. 9.
12. Massie, E., Ethridge, C. B. and O'Hare, J. P.: Thiocyanate therapy in vascular hypertension, *J. A. M. A.*, 111:2427, 1938.
13. Menninger, K. A.: Emotional factors in hypertension, *Bull. N. Y. Acad. Med.*, 14:198, 1938.
14. Ayman, D.: An evaluation of therapeutic results in essential hypertension, *J. A. M. A.*, 95:245, 1930.
15. Freyberg, R. H. and Peet, M. M.: The effect on the kidneys of bilateral splanchnicectomy in patients with hypertension, *J. Clin. Invest.*, 16:49, 1937.
16. Jacobson, E.: Variations of blood pressure with skeletal muscle tension and relaxation, *Ann. Int. Med.*, 12:1194, 1939.
- Jacobson, E.: *You Must Relax*, McGraw-Hill, 1934.
17. Craig, W. Me. K.: Essential hypertension: The selection of cases and results obtained by subdiaphragmatic extensive sympathectomy, *Surgery*, 4:502, 1938.
18. Smithwick, R. H.: Review of surgery of the motor pathways, *New England J. Med.*, 220:11, 1939.
19. White, J. C.: Progress in surgery of the autonomic nervous system, *Surgery*, 5:291, 1938.
20. Goldblatt, H.: See ref. 5.
21. Pickering, G. W.: The problem of high blood pressure in man, *J. Mt. Sinai Hosp.*, 5:649, 1939.
22. Sodeman, W. A.: Recent concepts in the pathogenesis of diastolic hypertension (a review), *Am. J. Med. Sci.*, 195:115, 1938.

## DISCUSSION

Dr. Edgar Hull (New Orleans): I am inclined to agree with the statement which Dr. Robbins quoted from Menninger that it was probably an evil day when Riva-Rocci first devised the sphygmomanometer. Certainly, I believe it has caused more suffering and more mental anguish to patients than it has alleviated suffering and anguish, because up to the present time there is no adequate treatment of hypertension, and most patients would be better off if they did not know they had it. We can only treat symptoms; we cannot treat causes, because we do not know them as yet. I am inclined to believe that in the treatment of hypertension, the patients who have not yet developed symptoms and signs of cardiac or renal disease are best handled as psychoneurotics, as patients with an anxiety state are handled by psychotherapy and careful use of sedatives. I think it is important in treating patients with hypertension to be sure that they do have essential hypertension, especially that they do not have a hypertension that is relievable, such as hypertension due to adrenal tumor or urinary obstruction. It is less important to differentiate between essential hypertension that is

due to chronic glomerular nephritis, for neither of these is remediable.

As regards surgical measures used in the treatment of hypertension, I think we should wait and not recommend these for our patients until definite information is ascertained as to the ultimate value of these procedures. Certainly we should not recommend surgical measures in treatment except in institutions where close observation can be maintained and where surgeons of the highest skill can do the work.

Dr. Robbins spoke of Goldblatt's work on the pathogenesis of hypertension. Goldblatt has produced hypertension in dogs by producing renal ischemia, and has advanced the suggestion that essential hypertension may primarily be due to vascular disease in the kidneys, thus reviving an old concept which, in recent years, has had few adherents. It has long been known, of course, that hypertension occurs in various types of renal disease, and hypertension has been produced experimentally by various methods of producing damage to the kidneys—by ligating the ureters, inducing necrosis by chemical means, and by ligation of the renal vein. Goldblatt's work is valuable in that it furnishes a convenient means of experimentally inducing hypertension so that its effects may be studied, but I do not think it has added to our knowledge regarding the genesis of essential hypertension in man. Available evidence so far indicates that the arteriolar lesions in the kidneys in cases of essential hypertension are the effect rather than the cause of the high blood pressure, and that the cause of the hypertension lies in chemical, hormonal, or nervous factors and does not depend upon discernible anatomic lesions in the kidneys or other organs.

I would like to make one additional remark. Dr. Robbins spoke of measures to be used in crises where the blood pressure may become dangerously high, and I would like to mention one procedure which has been used to reduce the blood pressure when it has reached alarming heights. This is a procedure which temporarily accomplishes the same result as sympathectomy, that is, extradural injection of procaine, the induction of extradural anesthesia. Although I have had no personal experience with this method of treatment, indications are that in a good many cases it produces a prompt, definite fall in the blood pressure which may be maintained for several weeks or even several months, and this measure may be of value in the treatment of hypertensive crises or hypertension which has reached an alarming level.

Dr. Chaillé Jamison (New Orleans): I would like to touch on just two points that have been mentioned and recount to you some personal experiences. I mean by that patients who have been under my personal observation for some time.

The first touches—and considerable interest has been aroused in it—the matter of treatment of the suprarenals and pituitary by the ray and other

forms of radiotherapy. I have had a patient under observation for years who has had this performance most thoroughly instituted without any effect upon his blood pressure, and I could mention several other such cases. I have had in the last two years two patients with labile hypertension who passed all the criteria for surgical interference, both of them apparently young men about forty. One of these men had the older form of sympathetic resection done, plus a removal of the suprarenal. He was observed by the surgeon who performed this operation, in conjunction with myself, for six weeks following the second operation, which as you know, is done in two stages. The surgeon said he was doing splendidly, but every time I took his blood pressure it was at least 260 systolic. I got a call from him six weeks later and he was dead at the time I reached him. The second patient was a typical hypertensive. He had an extensive sympathetic section done in two stages on both sides and returned from a famous clinic, where he had the operation performed, to New Orleans with his blood pressure 10 millimeters higher, both systolic and diastolic, than before operation. He and I were dreadfully disappointed because I had offered this as a last resort—he wanted to get married. Anyhow this man was in absolute despair. I had tried everything on him. Finally, I put him on the usual treatment with thiocyanate. This is interrupted treatment or the patient gets poisoned. After you get lower pressure that continues from ten days to two weeks, you go off for a period of three weeks. The point is that though I could not manage this man by medical means, his response to treatment following sympathectomy has been perfectly magnificent. His pressure is now within almost normal limits for his age and he is going to get married next month. I doubt seriously whether surgery in itself brings any real cure. It is based on Volhard's observation.

One final point is this: I have observed and have at least three times had the experience with my cases of essential hypertension, in the terribly hot weather we have in New Orleans in August, sometimes that if these individuals go into a building which is quite cold from the air-conditioning, there will likely be a disastrous effect, one man had a cerebral accident.

Dr. A. A. Herold (Shreveport): I would like to ask Dr. Robbins, in closing, to tell us what distinction he makes between patients with high systolic and high diastolic pressure. I have, at the present time, a female patient of approximately 50 years, who does not have a very high systolic, but every time the diastolic approximates 104, she gets a headache and feels as though her head is ready to "burst." Is this one of those cases to which he has reference as essential hypertension?

I have a relative who has been taking sulphocyanate for a year and recently developed acute intestinal distress with fever. Although his attending physician did not say that this drug caused

the trouble, I advised him to discontinue the cyanates, and his symptoms have gradually improved. I simply mention this case because of what others said of the danger of the cyanates.

Dr. J. Preston Davis (Lake Providence): I noticed that the discussion of this paper has dealt mostly with hypertension in men; nothing has been said about the ladies. I have noticed with hypertension in women that after the menopause, the hypertension often disappears. I wondered perhaps if there was not some connection between this finding and the case of the man who had the operation performed.

Dr. I. L. Robbins (In conclusion): Dr. Jamison mentioned thiocyanate, which was used after operation. Barker calls attention to the fact that in cases in which they could not get a reduction of blood pressure with thiocyanate and in which surgery was of no avail, they were surprised to find out that postoperatively thiocyanate was of great value in reducing the blood pressure.

Whether or not renal disease is responsible for hypertension I do not know. Dr. Hull has as much authority on his side as I have. Bright started the theory of renal disease being responsible. A speaker at the meeting of the American College of Physicians in New Orleans from information I have somehow picked up, was supposed to have said that in 50 autopsies 75 per cent showed some blockage in the main renal vessels and he says that this may possibly be the cause of some of these patients having hypertension.

Regarding extradural anesthesia, it is interesting to know that surgeons at the present time are using routine tests preoperatively to determine whether operation may prove beneficial in which they attempt to determine the spasm of vessel by giving carbon monoxide to breathe to note the height to which the blood pressure will rise and also an anesthetic to see how low the blood pressure will fall.

Cold is definitely contraindicated in hypertension. It has been known to bring on paroxysms resulting disastrously.

About the menopause and hypertension in women, I do not know what to say. After reading various and sundry things, including hypertension, that some say may occur to women at the menopause and what others say do not, I am at a loss to know with whom to agree.

In conclusion, I want to say that it is interesting to know that none of these people who report benefit—and their number is legion and their purported results do not show any of the stigmata of modesty in the big reductions achieved—we still have hypertension around us and still wonder what to do next.

## THE TECHNICAL AND PRACTICAL ASPECTS OF MILK CONTROL\*

PAUL S. PARRINO, M. D.†

FRANKLIN, LA.

The responsibilities of the health officer with regard to milk control are many:

1. He must see that the public is supplied with a product that has all of the food value that is expected in milk; that nothing of value has been taken away from the milk and that no adulterants such as water and preservatives have been added.

2. He must see the milk is delivered to the consumer in as clean a condition as possible, that is, free from gross foreign matter such as cow feces; with a low count of ordinary, non-pathogenic bacteria and at a temperature low enough to arrest bacterial growth and so prevent souring or decomposition.

3. He must see that no milk is used which is derived from animals infected with bovine tuberculosis, Bang's disease, mastitis, foot and mouth disease or other animal diseases capable of being transmitted to man through the ingestion of infected milk.

4. His most important function is to prevent the spread of those communicable diseases of man which may be and are frequently disseminated through the medium of raw milk. This includes undulant fever, typhoid, paratyphoid, bacillary dysentery, food infections, septic sore throat, scarlet fever, diphtheria, foot and mouth disease and, according to Rosenau, poliomyelitis and epidemic arthritic erythema.

### FOOD VALUE RESPONSIBILITY

With reference to the first responsibility it can be stated that such gross frauds as the watering of milk and the removal of butter fat are not nearly as common as they were several years ago. In this connection, it must be remembered that an otherwise safe milk may be contaminated by diluting

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†Director, St. Mary Parish Health Center.

with a water supply that is unsafe. The health officer is always concerned about the water supply of dairies. The use of chemical preservatives, to prevent low grade milk from souring or putrefying, is likewise practiced much less frequently than formerly.

Regarding the food value of milk, it is worthy of note that progressive dairymen are availing themselves of the valuable research work which has been performed by Agricultural Experiment Stations in the feeding of cows. Cows are now being fed special rations not only to increase the butter fat content but also to increase the vitamin content of milk, especially vitamin A through the use of feeds high in carotene.

#### RESPONSIBILITY OF CLEANLINESS

In considering the second responsibility, that of producing a clean milk, rigid standards have been laid down which touch every phase of milk production. Meticulous attention should be paid to the construction and cleansing of milk barns and milk rooms, cows should be thoroughly cleaned and udders wiped before each milking. Utensils and bottles should be scrupulously cleaned and sterilized with steam or chlorine solutions. The hands and clothing of all employees should be kept clean. Milking machines should be cleaned properly and promptly after each milking. Bottles should be capped by machine with a type of cap that completely covers the lip of the bottle. The milk should be cooled to below 50° F. and kept at this temperature until delivered to the consumer. However, the secret of producing clean milk does not lie in the promulgation of numerous regulations and the possession of well constructed barns and high priced dairy equipment. The essence of milk cleanliness lies in the honesty and perseverance of the owner and employees of every dairy. As long as human nature remains as it is, and so long as the type of help, usually found around small dairies, continues to produce our milk, we may expect difficulties in the production of a clean milk supply. A word must be said about total bacteria counts in milk. Too much attention is paid to the number of

bacteria in milk and not enough to the kind of organisms. High grades of raw milk with bacterial counts below 4000 per c.c. have been known to carry *Streptococcus epidemicus* causing epidemics of septic sore throat. Even raw certified milk which frequently contains only a few hundred bacteria per c.c. has been responsible for epidemics of communicable diseases. While it is usually assumed that a milk containing a very high total count will quickly sour, such is not the case. Milk may be teeming with typhoid bacilli without alteration of taste, odor or appearance.

#### PROTECTION AGAINST ANIMAL DISEASES

With regard to the third responsibility of the health officer to safeguard the public against bovine diseases transmissible to man, much progress has been and is still being made. Tuberculosis in cattle, formerly a major problem, is declining rapidly due to systematic tuberculin testing of cattle with slaughter of the reactors.

The greatest menace from bovine diseases today is Bang's disease, or contagious abortion, caused by *Brucella abortus* which is shed intermittently in the milk of infected animals. Bang's testing has been done in many parishes with the discovery that upwards of 16 per cent of all cattle examined were infected. In some individual herds examined, over 50 per cent were found to be reactors. It is only by a systematic retest twice a year with slaughter of all reactors that Bang's disease will be eradicated not only as a public health menace, but a major economic problem to the live stock industry.

*Streptococcus epidemicus*, derived from the udders of cows, is of human origin, the cow being first infected by the milker and then contaminating the milk which produces septic sore throat when consumed raw.

#### PREVENTION AGAINST HUMAN DISEASES

We now come to the fourth and most important responsibility, that is, to prevent the dissemination of communicable diseases of human origin through the medium of milk.

The method on which a great deal of reliance was once placed was that of the so-called "Health Certificate" issued annually to employees in dairies. It is not necessary to inform an audience such as this that this method is totally impracticable and worthless in preventing the spread of communicable diseases through raw milk. Even where food handlers have been actually examined, including laboratory tests, epidemics have occurred.

Typhoid is the most frequent disease spread through raw milk and it would appear that the examination of stools and urine of all milk handlers would detect the carriers. Unfortunately, many typhoid carriers shed the organisms intermittently and repeated examinations may fail to reveal the carrier state until an outbreak of milk-borne typhoid.

Again, the attempt to examine milk handlers for septic sore throat has been found to be impracticable. Suppose every milk handler was examined daily by a physician, by the time that a laboratory report was received the entire supply of milk could be infected. This also applies to carriers of scarlet fever and diphtheria.

#### PASTEURIZATION

In view of all this, health authorities are unanimously agreed that the only practical method to safeguard the public against milk-borne diseases of both human and animal origin is some form of heat treatment of all milk. The method almost universally used is pasteurization by the holding method. In this method the milk is heated rapidly to 143-145° F. and kept at this temperature for a period of 30 minutes while being agitated. It is then rapidly cooled to below 50° F. but should not be frozen. The pasteurized milk is then bottled and capped by machines so that it cannot become contaminated subsequent to pasteurization. It is well to emphasize that pasteurized milk is not boiled milk and differs in no respects, physically, from raw milk. There is absolutely no difference between the taste of properly pasteurized and raw milk. This has been proved repeatedly by giving individuals several numbered glasses, some con-

taining raw and some pasteurized milk; only in about 1 per cent of instances have the correct answers been given and this was in accordance with the laws of chance. The cream line is not affected. Pasteurization helps to expel many undesirable odors and flavors which are often absorbed by milk while being produced and handled, thus leaving it with a clean pleasant flavor.

Pasteurized milk or cream will keep sweet and in good condition for a much longer time than average raw milk because most of the bacteria that cause milk to sour or otherwise spoil are destroyed during pasteurization. In this connection I would like to dispel the popular but erroneous belief that pasteurized milk will not sour but will putrefy. I think that this belief has arisen due to confusing pasteurized milk with boiled milk. Pasteurized milk naturally takes a very much longer time to sour than raw milk but when it does the end result is the same. I would like to quote the experimental work taken from U. S. D. A. Bulletin 342: "When milk is pasteurized at 142° F. for 30 minutes, most of the bacteria (lactic acid) left alive in it are of the kind which cause it to sour, and there are present only a few bacteria (peptonizing) which cause it to decompose. As the milk stands, the acid formers grow and cause the milk to sour instead of decompose. However, when milk is heated at 180° for 30 minutes, the bacteria (lactic acid) which cause the souring of milk are practically all killed and those which are alive (peptonizing) continue to grow and cause the milk to decompose. Not only do certain types of lactic-acid bacteria survive pasteurization but some also grow at or near the pasteurization temperature."

What then does pasteurization do to milk? It definitely kills every known pathogenic non-spore forming organism which may be disseminated through milk. The thermal death point of every organism mentioned at the beginning of this paper is below 139° F. when held for 30 minutes. This gives a safety margin of 6° at 145°. At 145° from 95 to 99 per cent of all other non-pathogenic organisms are destroyed. The effect of pasteurization on the vitamins in milk is controversial. However, there is

unanimous agreement that there is no loss of vitamins A and D, with little effect on B and G. With regard to vitamin C, Guthrie, Hand and Sharp have shown that if pasteurization is done in vessels free from copper and under partial vacuum there is no loss at all of vitamin C. I would like to quote Mack and his co-workers as follows: "Though there is evidently some loss of vitamins B, C and G due to pasteurization, the fact remains that, with both children and experimental animals, no differences in food value have been found between raw and pasteurized milk. This indicates that milk in the quantities usually ingested contains more than enough of these essentials or is supplemented sufficiently by the other foods which make up the diet of the average child."

The study of Leslie C. Frank and his co-workers entitled, "Do children who drink raw milk thrive better than children who drink pasteurized or other heated milk?" is significant and I will quote their conclusion: "For children who are fed the average supplementary American child diet, in addition to milk, the following conclusion is justified by the foregoing studies of over 3,700 white children of ten months to six years of age: Children who are fed on pasteurized milk or other heated milk thrive as well as children who are fed raw milk, and contract certain communicable diseases less frequently."

With regard to the digestibility of pasteurized milk, investigators on nutrition have definitely shown that pasteurized milk is more digestible than raw milk. The heating tends to produce a soft curd which is more readily attacked by the digestive juice.

In discussing the pasteurization of milk, the question of the cost of the process has been frequently asked. Numerous studies conducted by the U. S. P. H. S. have shown that the cost of pasteurization, including the cost of equipment, depreciation, and fuel, is slightly less than one-half cent a gallon. It can readily be seen that pasteurization should not raise the cost of fluid milk.

One thing that pasteurization will not do is render dirty, stale, and weak milk fresh and clean. What the public wants is clean

milk, and not cleaned milk. Dairymen should aim to produce a raw milk with a very low bacterial count and then pasteurize it as an additional protection. Many individually owned dairies produce a raw milk with only 2000 to 4000 bacteria per c. c. If these plants would pasteurize their product locally a very good milk supply should result because a much fresher milk could be delivered. With the present system in operation in the large cities whereby hundreds of small farmers deliver milk to collecting stations, the product is frequently three days old by the time it is delivered to the ultimate consumer.

The principle source of worry to the health officer in dealing with the small pasteurization plant is the temptation to cut short the heating time or the temperature. Fortunately, there are now two new weapons with which to check this practice; the development of the phosphatase test which very accurately detects improper heating of milk, or the addition of very small amounts of raw milk to heated milk is a distinct advance in the science of public health. The other development is the perfection of pasteurization equipment which remains locked throughout the process and which cannot be opened until the milk has reached a temperature of 143° F. and has remained at this temperature for 30 minutes.

Another advance in the production of a safer milk was made when the American Association of Medical Milk Commissions endorsed the pasteurization of Certified Milk.

#### EVAPORATED MILK

While this discussion deals primarily with the fresh fluid milk supply, it is worth mentioning the role which canned evaporated milk plays in relation to the public health. A recent study in large cities shows the increase in the use of canned evaporated milk with a corresponding decline in the use of fresh milk. This trend is due to some of the following factors:

1. Evaporated milk is a clean, sterilized product which cannot transmit disease.
2. It has much better keeping qualities than fresh milk.



3. It is of a uniform composition and is standardized under the Federal Food and Drug Act.

4. It produces one of the finest and most easily digestible curds of any milk.

5. It is the cheapest form of milk that can be obtained. At six cents per pound can for evaporated milk, approximately one quart of fluid can be obtained by dilution with an equal volume of a safe water supply or boiled water. This price is one-half that of the average price for fresh milk.

#### CONCLUSIONS

1. When all factors are weighed, pasteurization of all milk supplies appears to be the solution to the problem of milk-borne infections.

2. This process does not change the taste or appearance of milk, does not affect normal souring, and does not affect the food value of milk except that some of the vitamins are slightly reduced.

3. Pasteurization does destroy every non-spore forming pathogenic organism of human or animal origin which may be found in milk.

4. Even if the physician recommends that all milk be boiled, it is safer to have all milk first pasteurized, for, as is well known, some of the milk will be consumed raw despite the admonitions.

5. Every practicing physician in Louisiana should interest himself in the quality of the milk supply in his locality and should stimulate interest in the community to improve the supply.

6. Rosenau states that "next to water purification, pasteurization is the most important single preventive measure in the field of sanitation." He adds, "It is the best insurance both for the industry and the consumer and the simplest, cheapest, least objectionable and most trustworthy method of rendering infected milk safe."

#### BIBLIOGRAPHY

Rosenau, M. J.: *Preventive Medicine and Hygiene*, D. Appleton-Century Co., New York, 6th ed. 1935.

Topley, W. W. C., and Wilson, G. S.: *Principles of Bacteriology and Immunity*, Wm. Wood & Co., Baltimore, 1937.

Frank, L. C. et al.: Do children who drink raw milk thrive better than children who drink pasteurized or other heated milk?, *Pub. Health Rep.*, 47:1951, 1932.

Frank, L. C.: What every person should know about milk, *Pub. Health Rep.*, 49:1505, 1934.

Year Book, Am. Pub. Health Assn., 1938-39.

1938 Transactions of U. S. P. H. S. Sanitary Advisory Board.

#### DISCUSSION

Dr. Julian Graubarth (New Orleans): Dr. Parrino has given us a most complete story of what constitutes good milk and also has told us how we should control it. As a pediatrician, I feel we should recommend only pasteurized milk and at no time should we permit our patients to drink raw milk; even though the milk be certified it should be further protected by pasteurization. We should have laws in our state to prohibit the sale of any milk for human consumption unless it is pasteurized,— of course I mean the milk must be of the good quality that Dr. Parrino has recommended for us before we attempt pasteurization.

If we go back to the turn of the century, in the State of New York, diarrheal diseases among infants and children were appalling, and as soon as the state went into the production of good milk the incidence of diarrheal diseases was greatly lowered. Following this, when milk was pasteurized and then later boiled, the incidence of diarrheal diseases was still further reduced. In any community where we insist on good milk, pasteurization and then boiling, the incidence of diarrheal diseases becomes almost zero.

We cannot expect the individual dairy to take care of the production of good milk without the rigid supervision of the state and we should have the law enforced to the letter.

Dr. E. A. Socola (New Orleans): It is possible to produce a safe raw cow's milk, and it may be mentioned at this time that such a milk is being produced and distributed in the larger communities of this state under the direct supervision of the Medical Milk Commission and is known as Certified Milk. Of the 400 milk-borne epidemics reported by the U. S. Public Health Service in the past ten years, none have been caused by Certified Milk. A few have been caused by inefficiently, poorly pasteurized milk. The local milk commissions are affiliated with the American Association of Medical Milk Commissions and we can certainly look to this splendid organization for leadership in this field.

Certified Milk is, however, unfortunately available only to a small portion of our population. Therefore, the general public is dependent on efficiently pasteurized milk as the source of safe milk. Furthermore, in my opinion, the ideal milk is certified pasteurized milk.

We must not overlook other factors, however, that enter into the production and distribution of a safe milk, i.e., laboratory control of the milk, veterinary and nutritional supervision of the herd, medical supervision of employees, farm control in

the form of sanitary inspection, and regulation as to distribution.

Dr. B. O. Morrison (Crowley): Another phase of the practical and technical aspects of milk control I want to stress is the education of the public on milk control. Films are shown on syphilis and tuberculosis control. I think we should also show films on the pasteurization of milk, not only to civic groups and public officials, but also to medical societies at meetings, along with papers on medicine and surgery.

The public is not asked whether or not they want bacteria-free water. They expect it because they have been educated to drink it and they should not be without it. And why should public dairymen and health officers go on a sit-down strike on the subject of sanitary, clean, organism-free milk? Should the dairymen, public officials, and civic authorities turn a deaf ear to one of the greatest weapons against bacillary dysentery, infant diarrhea, diphtheria, and undulant fever,—pasteurized milk?

Dr. A. A. Herold (Shreveport): At the risk of being called "old timey" and being in a hopeless minority, I want to say a few words for poor downtrodden raw milk. I am not in favor of the indiscriminate distribution of raw milk to the public, but I do believe that if you can get thoroughly sanitary and properly inspected, thoroughly tested for tuberculosis, I much prefer raw milk, not only for myself, but for the patient. At the risk of being told by Dr. Parrino that I do not get properly pasteurized milk, I am willing to take a "blindfold test" that pasteurized milk is not the same as raw milk and does not have the same taste.

A number of years ago I was in Boston with my children and one of my boys was knock-kneed. I took him to Dr. Lovett and told him that the boy ate well and played in the sunshine. He asked what sort of milk he drank and I answered, "pasteurized." He said, "Go back on raw milk." And from that day he took raw milk and now has perfect bones.

I do want to say that raw milk tastes better, and if you get it properly produced, I believe it is more nutritious. Certainly, the vitamins are there, and after pasteurization, we do not know how many are left; if it is done the way Dr. Parrino says it should be done, it might be all right.

Dr. W. J. Sandidge (Shreveport): I would like to endorse what Dr. Parrino said. The weight of scientific evidence is undoubtedly to the effect that pasteurized milk is a much safer milk. Many epidemics have been spread through raw milk in the past and they will undoubtedly occur in the future. With all the safeguards we attempt as health officers, we realize it is not entirely safe. I, personally, have known three typhoid epidemics due merely to a carrier handling raw milk. I am heartily in favor of what the speakers have said

about producing clean milk, and personally I am in favor of pasteurizing the clean milk. I believe the certified milk people advocate, or at least offer in the majority of cases, certification of their own supply.

I feel that a great many diarrheal diseases of babies are undoubtedly due to milk, milk that is not inspected. In the last few years, it is thoroughly impractical for the dairyman to have pasteurization equipment at his own farm. Now, they have small farm plants that are thoroughly practical and the health officer can give you security that the milk is properly pasteurized. This seems to me an important point which is not realized by doctors. I urge you to advise your patients to inquire as to the milk supply. I urge you to advise them to use pasteurized milk. It seems to me that is the only way we are going to have what we want. You cannot force pasteurization on people, you cannot pass laws and say nothing but pasteurized milk shall be used. People have been known to resist those laws very much.

Dr. J. Cyril Eby (Plaquemine): I would like to present a picture of rural dairies that supplied milk to the town of Plaquemine about ten years ago. Some of the 10 or 12 dairies were scrupulously clean and were careful in the handling of raw milk and maintained a bacterial count far below 50,000 per c. c. according to the standard methylene blue reductase test. Other dairies were careless and the bacteria count was any where between 100,000 to 300,000 bacteria per c. c. Few, if any dairy, met all the standard requirements of the Louisiana State Board of Health in the handling of raw milk.

Certain improvements were recommended which consisted of the construction of concrete floors in milk barns, improving water supply, screening and improving facilities in the bottling, washing of bottles, and also the construction of sanitary pit privies.

About eight years ago tuberculin testing of the dairy herds was routinely carried out. Reactors were removed from the herd and slaughtered for meat under the direction of the Louisiana Live Stock Board. The Federal and state agencies were responsible for the Bang's disease testing which began about five years ago and the reactors were similarly disposed of.

A case of typhoid fever was reported in a dairy helper in Iberville Parish east of the Mississippi River. About 60 gallons of milk were furnished daily to a creamery in Baton Rouge. As Health Officer, I had to refuse the selling of milk from this dairy until the water supply was made safe and a sanitary pit privy was constructed.

Unquestionably childhood tuberculosis could have had its origin from the milk supplied from cows that were positive for bovine tuberculosis. Every year one or more cases of brucellosis could be

traced from a milk supply with a cow that showed a positive Bang's disease reaction. I am in perfect accord with Dr. Parrino in advocating the pasteurization of all raw milk supplied to the general public by the dairies of this parish. This will require an educational program to be carried out before all the communities will adapt themselves to the regulations of the United States Public Health Service Standard Milk Ordinance. It has always been a question of how successfully and economically a small 50 to 100 gallon pasteurization plant could be operated. It is with pleasure that I wish to announce that at least two dairies have put in an order for the installation of a 100 gallon capacity pasteurization plant to be located on their own premises to be in operation within the next 60 days.

Dr. C. M. Jarrell (Epps): I am one of the old school from way back. None of our folks ever used cow's milk. We had three babies and they all used mother's milk and are grown men now.

We have heard a great deal of discussion here about milk, pasteurized, raw, and otherwise. I was here twelve years, doing pediatrics only. To be sure I would have all milk boiled three minutes or else use Borden's which has been brought to 140° temperature. Now, they speak about our noted authority Dr. Moss in Boston. I was one of Dr. Moss' pupils in 1926. He sent us out to the Borden units and we saw all their technic. They had for their milk 350 cows. It was dispensed just like doctors dispense prescriptions.

Boil your pasteurized milk for three minutes, or use Carnation or some other brand of milk which is safe for your babies, but first try the mother if possible. Milk may contain only 8,000 bacteria today and a million tomorrow if not properly handled.

Dr. Jerome Landry (New Orleans): The State Board of Health requires that all milk that comes into the State be inspected. A friend of mine is an inspector for the Board of Health in Bogalusa, and he was inspecting milk and a dairyman brought in five or ten cans of milk. In one can of milk was some underwear.

Dr. Paul S. Parrino (In conclusion): I had no idea of provoking so much discussion but am pleased to see so much interest taken in milk. I would like to answer one of the last speakers first, Dr. Jarrell, about correct infant feeding. With us in public health, breast feeding is our first choice, if it can be done. Next to this we advise to get the purest milk available.

In answer to Dr. Herold's question about the taste of pasteurized milk, the so-called blindfold test has been performed so often that I did not think that anyone still believed that pasteurization changes the taste, except favorably. We always advocate the production of high grade clean

milk with pasteurization as an added safeguard. If the milk is not heated to more than 145° F. for 30 minutes there will be no cooked taste to the milk. Off the record, this is the advice which milk sanitarians give to those who prefer the taste of raw milk to that of pasteurized, obtain a high grade of pasteurized milk then add a few drops of sterile cow manure, this will restore the raw milk taste.

I think that Dr. Morrison's point in comparing a safe water supply with a safe milk supply is a very good one. In communities which have an approved central water supply every house has to be connected to the supply and we do the same thing where we have a sewerage system. The same should apply to the pasteurization of milk, it should be the duty of the elected officials and health officers to provide a safe milk supply for the people.

I think the point Dr. Sandidge made about so many cases of diarrheal disease about which we never know is of course true. The last account from the Public Health Service reports 581 milk-borne epidemics since 1925, which probably represents only a small percentage of such epidemics. And that is where physicians can help, by reporting cases even if there is only one case. The other doctors may each have one or two, and that would make a small epidemic.

Dr. Socola mentioned properly pasteurized milk. In all these epidemics of milk-borne disease, none was attributable to properly pasteurized milk. In the few epidemics said to be due to pasteurized milk, on investigation it was found that the milk was not heated to 145° F. or not held for 30 minutes. We now have a test to find out if the milk has been heated to the proper temperature, and better yet, we have a locked type of pasteurization equipment, which cannot be opened until the temperature reaches 145° for thirty minutes.

Answering Dr. Eby about the cost of pasteurization equipment, at L. S. U. they have a small pasteurizer and cooler combined, fifty gallon capacity, for approximately \$350.00. Previously the lowest price was \$800.00 or \$900.00 and required a separate cooling unit.

The use of evaporated milk was brought out. In evaporated milk, we deal with a sterile product with definite uniformity from can to can or brand to brand, because they have to comply with the Food and Drug Act and they are held to a standard of fat content and total solids. The other most important point in these days of hard times is the cost of it. It is the cheapest form you can get, costing six cents a can, and diluting it with equal parts of water (the water should be boiled or use a safe supply) gives you approximately a quart of milk for six cents against the prevailing price of twelve cents for fluid milk. The use of evaporated milk is going up, whereas the use of fluid

milk is going down, showing the great use of canned milk in large cities. The cost of producing evaporated milk has something to do with it. Evaporated milk is usually surplus milk not needed for the supply of cities and can be produced at a surplus supply cost.

---

## MILK IN ITS RELATION TO THE PUBLIC HEALTH\*

ROBERT A. STRONG, M. D.†

NEW ORLEANS

Henry Dwight Chapin, in calling attention to Goethe's remark that blood is "a very peculiar juice," added that the same thing could be said of milk.

It is the food of the young of all mammalia and has long been recognized as possessing all of the fundamental physiologic elements necessary to promote growth and development, with the exception of the accessory food factors of which we speak as the vitamins. It was but a natural sequence that interest in the study of milk should be aroused and as a result, an extraordinary amount of very definite information is available.

One of the earliest things that was learned about milk is that in addition to being a valuable food, it is equally valuable as a medium for the growth and propagation of micro-organisms, both the ordinary saprophytic varieties and those pathogenic to man. These factors often produce in milk an enormous bacterial content. It is but reasonable, therefore, that the promulgation of methods to be followed by producers of milk for commercial purposes have always been one of the major undertakings of public health authorities. In spite of the progress that has been made by those who have studied the best means of safeguarding milk, the transmission of disease by cow's milk is still far too frequent. The question as to whether milk should be sold in its raw state or be sub-

jected to pasteurization is a controversy that has been perpetuated down through the years from 1892, when the first real serious effort to produce milk under medical supervision was inaugurated by Henry L. Coit, in Essex County, New Jersey, and when Nathan Strauss started his series of pasteurization plants in New York City the following year. About that time, infant mortality from intestinal diseases was becoming nothing less than a national calamity and the problem of safeguarding milk was approached from two directions. The objective of one was to formulate plans for the production of as pure a raw milk as was possible, while the other believed that all milk used for food should be pasteurized. This latter group was inspired by the discovery of the immortal Pasteur, that wine could be prevented from souring and fermenting by subjecting it to a temperature of about 55° F., and believed that the same thing could be done to milk. Later, with the collaboration of Soxhlet, one of the pioneers in the artificial feeding of infants, a technic of milk pasteurization was developed similar to that used in wines. As a result, the controversy between the advocates of raw milk and pasteurized milk had its beginning and has been made the subject of discussion from time to time ever since.

No one can deny that the courageous plan of Henry L. Coit for the production of what is now known as Certified Milk has done more to safeguard the milk supply than any other thing. After formulating his set of plans, he found a sympathetic producer in Stephen Francisco, of Caldwell, New Jersey, and the first certified dairy came into existence under the supervision of the medical milk commission of the Essex County Medical Society. Following this, other commissions were organized over the country and in 1906, these various commissions became federated into a national association known as the American Association of Medical Milk Commissions. This organization has progressively grown until today it has become the organization that is looked to as the mentor of standards

---

\*Read by title before the Louisiana State Medical Society, Alexandria, April 25, 1939.

†From the Department of Pediatrics, School of Medicine, Tulane University of Louisiana, New Orleans, Louisiana.

pertaining to the production of pure raw cow's milk.

#### SOME DISEASES TRANSMITTED BY RAW MILK

As the study of the best means of safeguarding milk continued, the discovery was made of an ever increasing list of diseases capable of being transmitted by raw milk. It was but a natural sequence that this strengthened the argument of advocates of pasteurization over those insisting on raw milk. Especially was this so when undulant fever among humans increased sharply. Moreover, the discovery that the *Bacillus abortus* is quite as capable of producing infection in the human as the *Brucella melitensis*, served as an additional argument for pasteurization. The transmission of bovine tuberculosis, the occurrence of epidemics of streptococcal sore throat, as well as diarrheas and typhoid fever raise the question as to whether or not raw milk should ever be used by humans.

In 1913, the experimental studies of Brennemann<sup>1</sup> on milk coagulation in the stomach awakened the interest of pediatricians in the use of boiled milk in infant feeding. His demonstration that the curd resulting from the digestion of raw cow's milk was large, tough, and tenacious, as compared to the curd resulting from the digestion of boiled milk, initiated the practice of boiling all milk used in infant feeding. Since this became the universal practice of all pediatricians, the decline in diarrheal diseases has been nothing short of amazing. This, of course, has been largely due to the greater ease with which the finer curd in boiled milk is digested, but the sterilization of the milk by boiling has been the principal factor in the reduction of the so-called summer diarrheas.

Ten years ago, several epidemics of streptococcal sore throat occurred in and around Boston, and it was found that some of these could be traced to milk obtained from certified dairies. As a result, a considerable number of physicians in Boston requested the producers of Certified Milk working under the Boston Medical Milk Commission to supply a "pasteurized certified milk." This suggestion caused a storm of protest

to come from the Essex County (New Jersey) Medical Society, and a bitter controversy developed between the two societies as well as the New England Journal of Medicine and the Newark (New Jersey) Evening News. It is not difficult to understand and sympathize with the attitude of the Essex County Medical Society, to whom credit is due for conceiving Certified Milk, as a result of the vision of Henry L. Coit. Every physician and pediatrician will agree fully that the standards under which Certified Milk is produced and sold must never be lowered. Moreover, the promoters of Certified Milk are entitled to the gratitude of everyone interested in the safeguarding of infants, but it is believed that the motives of those who advocated pasteurization of Certified Milk were at the time misunderstood.

#### PASTEURIZED CERTIFIED MILK

For a while, nothing was done to comply with the requests of the Boston physicians until 1935, when a resolution was introduced at the annual conference of the Association of American Medical Milk Commissions and the Certified Milk Producers Association of America, which was held in Atlantic City, to permit the pasteurization of Certified Milk by any local medical milk commission who desired to do it. According to Stearns,<sup>2</sup> writing in the official magazine of both of the associations, physicians, pediatricians, health officers, and educators, as well as milk producers from all parts of the country who were in attendance, hailed the step as one of the most progressive developments in the history of Certified Milk. They pointed out that it will not only add to the safety of an already notably safe and sanitary milk, but will greatly increase its sales because pasteurization has become almost universally accepted as a method of assuring safer milk.

The impression would be gained that such an important step by an organization of this type would settle for all times the controversy in favor of the pasteurization of all milk, but apparently it has not, because it is noteworthy that even in our own state, there are men who still insist on the su-

periority of raw milk. Moreover, by billboard advertising as well as radio announcements, propaganda is being spread in behalf of producers of raw milk. It is not easy to understand this, except that it is due to the fact that a number of the small producers of raw milk feel it is "unfair" to expect them to install the necessary pasteurization equipment. In the meantime, we are still having milk-borne epidemics and at the present time, in our state there has been a sharp increase in typhoid fever, which has been traceable to some of these raw milk dairies. I believe that these and similar epidemics will continue to occur just as long as raw milk is being sold.

#### SUMMARY

I am thoroughly cognizant of the fact that there are many things which contaminate milk which none of us would care to ingest even though the milk is pasteurized. Therefore, it cannot be too strongly emphasized that pasteurization should not be used to "cover up" dirty milk. The consensus of informed and unbiased opinion is that all milk should be produced in accordance with the methods and standards, which were initiated by Henry L. Coit, in 1892, and since improved as a result of 47 years of exchange of ideas in an annual

joint conference between physicians and milk producers. After being produced in accordance with these standards, it should then be effectively pasteurized in modern equipment. Furthermore, it should be known that improper pasteurization is worse than no pasteurization at all, because it inspires a feeling of artificial security, just the same as an attractive "Grade A Raw Milk" label does when placed on a bottle of dirty milk. In order to determine the efficacy of pasteurization, the phosphatase test should occasionally be applied. This test is based upon the fact that phosphatase, an enzyme in raw milk, hydrolyzes a phenol ester and thus liberates phenol. The phenol is then determined colorimetrically and if any is still present, it is an indication that the pasteurization is incomplete. When it is complete, all of the phosphatase is destroyed and cannot, therefore, act on the phenol ester.

It cannot be successfully denied that until universal pasteurization is practiced, we cannot expect to eliminate milk-borne diseases.

#### REFERENCES

1. Brennemann, Joseph: Boiled versus raw milk, *J. A. M. A.*, 60:575, 1913.
2. Stearns, Torrey: Permissive pasteurization of certified milk, *Certified Milk*, 10:3, 1935.

# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.,  
Vice-chairman

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

Edwin L. Zander, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahon, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*  
1430 Tulane Avenue

**SUBSCRIPTION TERMS:** \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

## GRADUATE MEDICAL ASSEMBLY

The fourth of the New Orleans Graduate Medical Assemblies will be held this year February 26-29 with headquarters in the Roosevelt Hotel. This meeting will be distinguished by this fact: it is going to honor the sixtieth year of Dr. Matas' active practice.

This particular effort to encourage grad-

uate teaching has been extremely successful. Starting with a relatively small registration, it has grown by leaps and bounds until last year nearly one thousand doctors from states all over the union met to hear what the distinguished essayists had to say in their particular lines. This year the meeting should be even more outstanding. Some of the speakers have already been announced in the Journal. Selecting at random some of the others who appear on the program it might be said that Dr. H. L. Bockus, Professor of Gastroenterology and head of the Gastroenterologic Division of Pennsylvania University Graduate School of Medicine, will talk on the management of peptic ulcer. Dr. Q. U. Newell will discuss irradiation therapy in gynecology, and retrodisplacement of the uterus. Dr. Newell, Professor of Obstetrics and Gynecology at Washington University School of Medicine, is a member of the Staff of the Barnes Hospital as well as five other hospitals. He belongs to all of the important national organizations having to do with his specialty. Dr. W. J. Dieckmann is another well-known obstetrician and gynecologist to appear on the program. He is Associate Professor in the Department of Obstetrics and Gynecology in the University of Chicago and is attending obstetrician and gynecologist to the Chicago Lying-In Hospital. He is also one of the associate editors of the American Journal of Obstetrics and Gynecology.

One of the most active ophthalmologists in this country and one who is noted for the beautiful atlas entitled "Photographs of the Fundus Oculi" is Dr. Arthur J. Bedell of Albany. Dr. Bedell's subject should be of interest not only to the specialist but to all men who practice medicine as he is prepared to give a demonstration of fundus changes that take place in systemic disease and to illustrate these with colored photographs.

Urology will be represented by Dr. W. F. Braasch of the Mayo Clinic who is Professor of Urology in the Graduate School, University of Minnesota. He is the author of two well-known books on pyelography and urography; he is a prolific writer; he

is known to many men outside of his specialty because of his splendid work in combating socialized medicine in this country and he is a speaker of force and of interest. Dr. Shields Warren is one of the younger group of pathologists who has made of pathology truly a living and live subject. Assistant Professor of Pathology in the Harvard Medical School, he is also pathologist of the Harvard Cancer Committee, to the New England Deaconess and to other hospitals. He will talk on pathologic changes that take place in diabetes, as well as, in his other address, on the effect irradiation has on tumors and normal tissues. Dr. Warren will conduct a clinicopathologic conference, surgical in nature, which should be not only interesting but extremely instructive.

Other well-known medical men will appear on the program. The details of their talks and a brief sketch of their accomplishments will be published in a subsequent issue of the Journal.

The opportunity of hearing and of learning from a group of men who have been selected as speakers at the Graduate Medical Assembly is a very definite stimulus to the doctors who live in New Orleans. Fortunate is their lot. They will not have to travel in order to hear these men but they will be brought right to their doorstep. Fortunate are the doctors of Louisiana who will not have to go far to hear these essayists. Just how fortunate they are will be shown by the fact there will be present a large number of doctors from the surrounding states and even from distant states who will come to take advantage of the program and to enjoy at the same time the beautiful early spring weather which will be found in New Orleans at this time of the year.

---

#### MEDICAL ECONOMICS

It is to be hoped that the members of the Louisiana State Medical Society have read the Platform of the American Medical Association which appeared in the last issue of the Journal and which also has been published in the official periodical of the American Medical Association. These several

planks represent an extremely well thought out and well expressed opinion of what the doctors in this country stand for. Furthermore, they refute many of the reasons advanced by the proponents of state medicine for the introduction of this system into our democratic United States.

Plank No. 7 says "The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability," a truly vital statement of fact. Amplifying this plank it should be pointed out that the United States sickness and death rates are lower than any great country in the world. This has been obtained because the medical profession recognizes the importance of preventive medicine. It has not come about as result of the actions of a medical profession organized by the government and controlled by bureaucrats.

It is obvious that there are certain sections of the population who, because of economic reasons, are unable to obtain services of private physicians. These people are taken care of adequately by the physician at a small cost, or without charge. In the bigger centers of population they obtain in medical out-patient clinics and in the wards of charitable hospitals, service second to no other service rendered to any person anywhere in the world. These doctors are not paid. To the physician who gives free service, whether it be in his office or in a clinic, there is undoubtedly a feeling that they are not being treated entirely justly and that they render a free service which is given by no other profession or business in the United States. The medical profession thinks possibly some of this inequality can be obviated by certain prepayment plans to cover the cost of medical care. These schemes are being worked out and elaborated in many communities without the intervention of the government.

Lastly, the concluding sentence of this plank bears reiteration and accentuation. It follows: "It (the medical profession) continues, however, to feel that the development of the private practice of medicine



which has taken place in this country has led to higher standards of medical practice and of medical service than are elsewhere available and that the maintenance of the quality of the service is fundamental in any health program."

—o—

### OBSTETRIC ANALGESIA

One of the objections raised to the use of analgesics in the management of the delivery of the pregnant woman is that it is harmful to the child. The prospective mother, her mother or some other female member of the family will say that they would prefer not to have any anesthetic used or analgesia used when the child is being brought into the world because, succeeding delivery, the child may not be as strong and healthy as it would be if the mother had not taken a drug. It is also their belief that the infants are more likely to die, nor is this impression solely peculiar to the laity. Many physicians feel the same way.

The only obvious method of determining whether obstetric analgesia does have an ill effect on the babies born of mothers who have had one or another commonly used drug would be to contrast a large series of infants in one group born of mothers who have not had analgesia with those who have had it. This has been done by Kotz and Kaufman\* who selected 800 consecutive births for study. In 500 cases the mother was given paraldehyde alone or in combination with some other drug. In 100 instances she was given pentobarbital sodium and scopolamine and 100 in which the mother was treated by the McCormick modification of the Gwathmey technic. The infants of 100 mothers who had not received drugs were the controls. The average dose of paraldehyde was 17.5 drachms (66 c. c.),

the largest amount given was 38 drachms (142 c. c.). Approximately one and a half doses of the McCormick mixture plus 5 grains (0.32 gram) of pentobarbital sodium was given to a second group. To the third group was administered 6.78 grains (0.44 gram) of pentobarbital sodium and 1/200 grain (0.3 mg.) of scopolamine.

The mortality rate, the initial loss of weight, as well as the rate of gain of weight, the temperature curve and the pulse and respiration curves for ten days were all studied. The average duration of the labor was seventeen and a half hours in primiparas, and twelve and a half hours for multiparas. The effect of analgesia on the fetal mortality rate, corrected, in the paraldehyde treated mothers group, was 0.8 per cent, in the McCormick series of babies, 2 per cent, one of whom had hydrocephalus. In the pentobarbital sodium group there was a corrected mortality of zero. These figures compare satisfactorily with the figures of any delivery in which the mother does not receive analgesia.

No effect could be found on the child in so far as the weight was concerned; as a matter of fact the babies of the mothers who received the analgesia did better than the babies that were born of mothers who had not received it. There were no variations in pulse, temperature and respiration, nor were there noted any significant differences in the two groups in so far as the appetite, food consumption, dehydration or attitude was observed. The authors conclude that obstetric analgesia properly administered does not increase infant mortality or morbidity rate. These facts should be known when objection is made to the use of a method which most obstetricians now consider to be of great value.

\*Kotz, Jacob, and Kaufman, Morton S.: Obstetric analgesia, *J. A. M. A.*, 113:2035, 1939.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## TUMOR CLINIC OF THE SHREVEPORT CHARITY HOSPITAL

Shreveport

The weekly meeting of the Tumor Clinic held December 5 was presided over by Dr. George H. Robinson, assistant superintendent of the Hospital. The program was turned over to Dr. Harold G. F. Edwards, Clinical Director of the Tumor Clinic, who presented:

### THE BIOPSY PROBLEM

The intelligent management of any tumor demands a knowledge of and the histologic proof of the nature of the tumor to be treated, and furthermore, a tissue study is often desirable to determine the effect of irradiation on tumors which have been successfully treated by that method.

The biopsy problem is a most important one, and while there may be different opinions concerning the correct technics of performing a biopsy there are also differences of opinion regarding the preparation of the tissue secured by the biopsy.

Speaking of the diagnoses of cancer, Ewing says: "A diagnosis may be said to have been obtained when the clinician has been placed in command of data which will enable him to understand the origin, cause and prognosis of the case in hand. This information must include the results of the physical examination of the patient, roentgenological study and histologic study, which reveals the structure of the tumor, its grade of malignancy, and the grade of radiosensitivity. Without all these data the diagnosis must be regarded as incomplete."

The question of safety of a biopsy under ordinary conditions is generally admitted. To claim that it is a safe procedure under all conditions is as Mathews states "as erroneous as to claim that it is generally a dangerous procedure." Some clinical judgment must prevail in every case to determine the safety of the method. The methods which I advocate have served me well in more than 7,000 biopsies and are so simple that anyone with a little time can easily carry them out.

### OPEN AND ULCERATED TUMORS

Tumors occurring on the cutaneous envelope or tumors beneath the skin which have become ulcerated may be easily biopsied by making use of Ronguer forceps. For lesions in the nasal passage or oral cavity the Martin biopsy forcep is used. A biopsy of the cervix is best taken with a Kaplan forcep—this is a rugged instrument with a good cutting jaw, so necessary in cervical lesions; surface biopsies require no anesthesia and are practically without pain. Immediately after the tissue has been taken it should be placed in 10 per cent formalin solution.

### ASPIRATION AND PUNCH BIOPSIES

Deep-seated tumors, or tumors below the skin often present difficult diagnostic problems. Many tumors should not have incisional biopsies done; this is especially true of liposarcomas, neurogenic sarcomas, fibrosarcomas, bone tumors, and tumors of the breast. All of these may be explored with complete safety with the needle biopsy. This method has now been extended to include the lung, liver, certain pelvic tumors and even abdominal masses. I believe the needle method best for soft tumors and that the firmer tumors are best biopsied with the Hoffman punch. The skin and tissues overlying the tumor are infiltrated with novocain and a small puncture wound is made with a pointed knife to avoid getting surface epithelium into the needle or punch. If the needle method is used a 3 or 4 inch, 17 gauge needle is attached to a 10 c.c. Luer or Record syringe. The needle is introduced with the piston closed until the needle is felt to enter the tumor. The piston is practically withdrawn to create a vacuum within the needle and syringe, and the needle again pushed into the tumor with rotary motion forcing particles of the tumor into the needle. This procedure may be repeated several times to insure sufficient material. The vacuum is now broken by loosening the needle after which the needle is replaced on the hub and withdrawn from the tissue. The small flake of tissue is expelled from the needle on to a microscope slide and smeared out by pressure with another slide, while another piece of tissue is placed in solution of formalin for section study.

The Hoffman punch consists of a hollow metal cannula, 14 gauge, which is fitted to a handle; within this cannula is a cylindrical rod with a barb near its end. In using the punch the skin and tissues are prepared as for the aspiration biopsy and the skin punctured with a knife, the punch is closed and then introduced into the tumor. When the point is felt within the tumor the needle is opened and the cutter is exposed, then gentle opening and closing of the handle causes a specimen of the tumor to be caught in the barb. The cutter is then completely withdrawn through the cannula and the specimen removed from the cutter. The procedure may be repeated as often as necessary. This method permits of rapid examination by crushing a small particle of the tumor between slides. The Hoffman punch, moreover, offers the advantage of a larger particle of tumor than is possible to obtain with the aspiration method, permitting paraffin section study.

The great objection to either the aspiration or punch biopsy usually comes from the pathologist or surgeon who has failed to become familiar with the needle or punch method of biopsy and who has an inborn adverse reaction to the method,

with no evidence whatsoever to support his opposition. To the contrary, however, there exists any number of experimental and clinical investigations which prove the safety of the method. Considerable experience is necessary before the pathologist can be certain of his diagnosis. The method can be mastered by the pathologist who wants to take advantage of this method. The procedure can be quickly performed and the pathologist can render his opinion within a few minutes. The method has the full endorsement of Ewing and Stewart, who have studied material from thousands of punch and needle biopsies. In my own experience working with my confrère, Dr. Mathews, studies of material from more than 400 cases have demonstrated the value of such methods.

Biopsy study of neck nodes, unless one suspects metastatic carcinoma, should be incisional, and include a sizeable portion of the gland involved, not a small remote gland. The pathologist demands, and should have, sufficient tissue to study the architecture of the gland to reach a satisfactory conclusion. The needle biopsy is entirely satisfactory for metastatic nodes.

Curetting of uterine cavity for diagnosis is so common a procedure that no description is necessary. Only a word of caution: the curettings should include every portion of the endometrial lining.

J. T. NIX CLINIC  
New Orleans

At the meeting held in December, Dr. C. E. Gorman presented the following paper:

INTESTINAL INTUBATION BY USE OF  
MILLER-ABBOTT TUBE

Once again medical research has come to the aid of the harassed surgeon. It has prevented a great number of primary and secondary operations. Cases that, due to their very nature, render the patient a poor surgical risk are either saved from surgery or they are improved so that surgery may be accomplished safely.

Operations for postoperative intestinal obstruction, previously the only outlet, always accompanied by a high mortality, may now be avoided. The unsatisfactory enterostomy, with its tedious care and resultant fecal fistula, may be prevented. The percentage of intestinal obstruction cases treated by non-surgical methods has risen sharply. In the article, "Intestinal Obstruction," which appeared in the *New Orleans Medical and Surgical Journal*, November, 1936, the author called attention to a group of such cases escaping surgery.

As a review of our ideas at that time, we wish to repeat our impressions:

1. Patients with the indwelling naso-duodenal catheter develop alkalosis and marked dehydration.

2. If the obstruction is due to fecal impaction good results can be expected non-surgically.

3. The use of the Vacoliter bottle has simplified the administration of glucose and saline by vein.

4. The combination of the naso-duodenal indwelling catheter with glucose-saline infusions decreases the risk involved in operating on such a patient.

By the methods mentioned above a great number of cases escaped surgery, much to the joy of the surgeon. Nevertheless certain of these patients had to be operated upon. The advent of the Miller-Abbott tube further reduces the necessity for operative relief of postoperative obstruction and paralytic ileus.

The experimental trail of intestinal intubation was blazed by A. L. Levin, and has now been surfaced by Miller and Abbott. The former introduced the Levin naso-duodenal tube, the latter presented the Miller-Abbott double lumen (ballooned) naso-duodenal tube.

Since the contraindications for the sole use of the tube are less numerous than the indications we shall discuss these first. Intestinal obstructions due to: (1) Perforated gastric ulcer; (2) volvulus; (3) incarcerated hernia; (4) mesenteric thrombosis; (5) intestinal gangrene; (6) irreducible intussusception. These are not absolute contraindications against intestinal intubation. They are conditions which are recognized as emergency surgical conditions and demand immediate surgery. On the other hand, we do propose the application of naso-duodenal intubation methods, not as a curative measure, but as a supportive and relief measure. There are very few and rare conditions that would prevent intestinal intubation.

The indications for the Miller-Abbott double lumen tube are intestinal obstructions due to: (1) Paralytic ileus; (2) kinking of intestinal tract; (3) postoperative intestinal adhesions; (4) inflammatory adhesions and reaction; (5) intra-abdominal tumefactions; (6) intrapelvic tumefactions; (7) miscellaneous.

Paralytic ileus has always been a very dangerous and serious condition. This is especially true when it develops in a nervous or neurotic patient. It is quite disconcerting to the surgeon when, after completing a beautiful operation, no infection present, a paralytic ileus develops and a subsequent intestinal obstruction. These cases are ideal for the use of the Miller-Abbott double lumen tube. The technic being practically the same in all cases it will be described later.

Postoperative intestinal adhesions are probably the most common cause of intestinal obstruction. Unfortunately, these patients are susceptible to frequent recurrences. They may cause a complete or partial obstruction. This type of indi-

vidual can very often be relieved of the immediate obstruction by this method. They are advised then to follow one of two courses:

1. Surgery and the liberation of the adhesions and the instillation of papain. This is the method of choice.

2. Prevention of constipation by the daily use of petrolagar or mineral oil. This is used for those cases refusing surgery.

Occasionally the bowel will develop a simple kink upon itself. In the wake of the kink follows edema and progressive obstruction. The Miller-Abbott tube relieves the obstruction at the exact site of the kink and edema. The edema reduces and allows the tip of the tube to pass through the obstructed area.

Quite often an obstruction results from peritoneal inflammation or reaction. These patients respond very nicely.

Intra-abdominal or intrapelvic tumefactions are frequent. In these cases the intestinal patency, and peristalsis is usually restored. This improves the patient's general condition and reduces toxicity. At the time this goes to press there is such a patient now in the hospital, relieved of her obstruction and ready for surgery. Presenting herself with nausea, vomiting, acute abdominal pain, and markedly distended abdomen, a diagnosis of intestinal obstruction was made. This was confirmed by x-ray. A firm, rounded mass could be felt in the suprapubic area; a diagnosis was made of acute intestinal obstruction due to an intrapelvic tumefaction. The Miller-Abbott tube was inserted and oil instillations followed by enemas were instituted. The patient improved steadily as was manifested by clinical results, x-ray findings and the patient's own testimony. Several days later the obstruction was completely relieved, the mass could easily be felt, the Miller-Abbott tube removed, gastrointestinal series of x-rays was negative, and the patient is now a good surgical risk.

The case chosen to summarize is one of a paralytic ileus (neurotic basis). Miss E. (#M 3337), 28 years of age, was admitted with a diagnosis of retroverted uterus, cystic oophoritis, hyperplastic endometritis, and chronic appendicitis. She was of a nervous temperament. Operation consisted of dilatation and curettage, resection right ovary, uterine suspension, and appendectomy. The patient left the table in good condition. On the second postoperative day she developed a marked gastric distention. A naso-duodenal catheter was inserted with some relief. Oil instillations and enemas were instituted with the return of much flatus. Several hours later the entire abdomen was distended. Subsequent enemas resulted in no fecal matter and no flatus. X-ray by Drs. Fortier and Gately reported "several loops of distended small intestines seen with multiple fluid levels.

Moderate gas distention of the colon noted. The findings suggest ileus."

The naso-duodenal catheter was removed and replaced with a Miller-Abbott tube. The x-ray was then reported as: "Marked dilatation of loops of small intestines with multiple fluid levels. Large intestines are not distended at this time. Conclusion: Evidence of ileus or intestinal obstruction. Miller-Abbott tube is in the stomach." Re-ray later showed "tip of tube is now in the third portion of the duodenum." The patient began to improve clinically. Twenty-four hours later the re-ray showed "tip of Miller-Abbott tube is well down in the small intestines. There is marked decrease in the gas distention." Another re-ray twenty-four hours later showed "considerable of the tube is seen in the small intestines with marked decrease in the amount of gas seen in the small bowel." The patient continued to improve. The enemas began to yield flatus and finally fecal matter. The distention diminished. The tube was removed on the sixth day and the patient continued to improve without further complication. She was discharged in excellent condition.

#### TECHNIC OF INTUBATION

The nasal mucous membrane is anesthetized by topical application of either cocaine or butyn solution. The tube is well lubricated, the balloon is deflated. The tube is then placed through the nostril into the nasopharynx and esophagus. The progress to the stomach is facilitated by aid of drinking water. About every three hours three or four inches of tube are added. The tube's progress is followed by x-ray. When the tip is in the duodenum the balloon is inflated with 30 c. c. of air. The tube is not attached to the nares. Liquid albolene is used as a nasal spray or drops. Usually the tube will progress due to the peristalsis created by the balloon acting as a bolus. If the tube does not progress of its own accord then approximately three to five inches are gently forced into the stomach. When the patient is well the question of removal always arises. The removal is very simple—merely lubricate the nostril and gently but firmly pull the tube outward.

#### IMPRESSION

1. The use of the Miller-Abbott tube has further decreased the number of patients necessitating emergency enterostomy.

2. The use of the tube enables the patient to be improved physically and to be changed from a poor to a good surgical risk.

3. The tube transforms a great number of emergency operations into elective surgery.

4. The use of the tube allows oral feeding as the obstruction becomes released.

#### BIBLIOGRAPHY

1. Levin, A. L.: A new gastro-duodenal catheter, *J. A. M. A.*, 76:1007, 1921.

2. Ochsner, Alton, and Storck, Ambrose: The prevention of peritoneal adhesions by papain, *Ann. Surg.*, 104:736, 1936.

3. Lopstrom, James E. and Noer, Rudolf J.: The use of intestinal intubation in the localization of lesions of the gastrointestinal tract, *Am. J. Roentgenol. & Radium Therapy*, 42:321, 1939.

4. Abbott, W. Osler: Intubation of the human small intestine: XII. The treatment of intestinal obstruction and a procedure for identifying the lesion, *Arch. Int. Med.*, 63:453, 1939.

5. Abbott, W. Osler and Johnston, Charles G.: Intubation studies of the human small intestine. X. A non-surgical method of treating, localizing and diagnosing the nature of obstructive lesions, *Surg. Gynec. & Obst.*, 66:691, 1938.

6. Willson, D. M.: Intestinal intubation. I. Studies in acute and subacute obstructions of the small intestine, *Proc. Staff Meet. Mayo Clinic*, 13:666, 1938.

7. Klein, Samuel H.: Peroral intubation and drainage of the small intestine: Technique and indications, *Surgery*, 4:827, 1938.

8. Noer, R. J. and Johnston, Charles G.: Decompression of the small bowel in intestinal obstruction, *Am. J. Digest. Dis.*, 6:46, 1939.

9. Abbott, W. Osler: Intubation studies of the human small intestine. XI. Practical points in the treatment of acute obstruction, *Pa. Med. J.*, 42:890, 1939.

10. Wise, Robert A.: The Miller-Abbott double lumen tube in intestinal obstruction. A preliminary report, *Am. J. Surg.*, 41:412, 1938.

11. Gorman, C. E.: Intestinal obstruction, *N. O. Med. & Surg. J.*, 89:249, 1936.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

- January 2. Orleans Parish Medical Society, Board of Directors, 8 p. m.  
Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.
- January 3. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Hutchinson Memorial Clinic Staff, 8 p. m.  
Mercy Hospital Staff, 8 p. m.
- January 4. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- January 8. Orleans Parish Medical Society, Installation of Officers, 8 p. m.
- January 9. Eye, Ear, Nose and Throat Society, 8 p. m.
- January 10. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Touro Infirmary Staff, 8 p. m.
- January 11. New Orleans Hospital Council, Touro Infirmary, 8 p. m.
- January 15. Hotel Dieu Staff, 8 p. m.
- January 16. Charity Hospital Medical Staff, 8 p. m.
- January 17. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Charity Hospital Surgical Staff, 8 p. m.
- January 18. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- January 19. I. C. R. R. Hospital Staff, 12 noon.  
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- January 22. Orleans Parish Medical Society, 8 p. m.
- January 23. Baptist Hospital Staff, 8 p. m.
- January 24. French Hospital Staff, 8 p. m.

- January 25. L. S. U. Faculty Club, 8 p. m.
- January 31. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.

During the month of December, besides the regular meeting of the Board of Directors, the Society held the fourteenth Stanford E. Chaillé Memorial Oration and a regular scientific meeting.

Dr. Hugh Roland Butt of the Mayo Clinic, Rochester, Minnesota, delivered the Chaillé Memorial Oration. His subject was "Advances in the Knowledge of Vitamins, with Particular Reference to Vitamin K." Dr. Waldemar R. Metz read a short sketch on Dr. Chaillé and then read the names of the members who died in 1939.

On Saturday, December 9, the annual election of officers was held. The following officers were elected for 1940:

President: Dr. Gilbert C. Anderson; first vice-president: Dr. Edmund L. Leckert; second vice-president: Dr. Andrew V. Friedrichs; third vice-president: Dr. Daniel J. Murphy; secretary: Dr. Edwin L. Zander; treasurer: Dr. Edwin H. Lawson; librarian: Dr. Donovan C. Browne; additional members of the Board of Directors, Drs. Henry B. Alsobrook, Max M. Green and Cassius L. Peacock.

At the scientific meeting held Monday, December 11, the following program was presented:

- Here and There in Anesthesia  
By.....Dr. Ansel Caine  
Discussed by Dr. Isidore Cohn.
- Hyperpyrexia: Its Indications and Complications.  
Evaluation of Results Based on 5500 Fever Sessions  
By.....Dr. J. A. Trautman (by invitation)  
Discussed by Dr. W. L. Smith (by invitation), Dr. Nathan H. Polmer and closed by Dr. Trautman.

The following doctors were elected to Active Membership: Drs. Stanley Cohen, Louis B. Leggio, Frank R. Lock and Richard E. Selser.

Dr. C. C. Bass was elected to Honorary Membership in the Society at the regular meeting held December 11.

Three active members resigned during the month: Drs. James S. Davidson, Jr., John P. Leake and Henry J. Otto. Dr. Davidson is leaving New Orleans to practice in Alabama.

It is with regret that we report the loss by death of four active members: Drs. Leonhard E. Devron, Amédée Granger, Joseph N. Roussel and David L. Watson.

#### NEWS ITEMS

A symposium on pneumonia was presented before the Franklin Parish Medical Society at Winnsboro, November 15. The following papers were presented: "The Pathology and Pathogenesis of Pneumonia" by Dr. John R. Schenken; "The Diagnosis and Differential Diagnosis of Pneumonia" by Dr. Robert H. Bayley; "The Treatment of Pneumonia" by Dr. J. O. Weilbaeher, Jr.

Dr. Carlo J. Tripoli was in charge of arrangements for this program.

Dr. Robert A. Strong made the graduation address to officers completing the course prescribed for flight surgeons at Randolph Field, Texas, November 10. Dr. Strong then attended the American Academy of Pediatrics meeting in Cincinnati, November 16-18.

The following members of the Society attended the meeting of the Southern Medical Association in Memphis, November 21-24: Drs. Ruth G. Aléman, C. C. Bass, Elizabeth Bass, Merrill C. Beck, Donovan C. Browne, Wiley R. Buffington, B. I. Burns, Edgar Burns, Guy A. Caldwell, Isidore Cohn, Maurice Couret, Joseph S. D'Antoni, Michael E. DeBakey, John F. Dicks, Dean H. Echols, B. G. Efron, Ernest Carroll Faust, Lewis A. Golden, Peter Graffagnino, Béla Halpert, William H. Harris, Charles S. Holbrook, James K. Howles, C. Barrett Kennedy, Marion E. Kopfler, Maxwell E. Lapham, Lucien A. LeDoux, Francis E. LeJeune, Maurice Lescale, A. L. Levin, Henry J. Lindner, Randolph Lyons, Emma S. Moss, Emile Naef, Hugh Page Newbill, Alton Ochsner, Neal Owens, Joseph W. Reddoch, John T. Sanders, John R. Schenken, H. Theodore Simon, Earl Conway Smith, Edwin A. Socola, Robert A. Strong, George J. Taquino, Robert W. Todd, Carlo J. Tripoli, M. T. Van Studiford, William A. Wagner, Theodore A. Watters, and Julius Lane Wilson.

Dr. Isidore Cohn presided at the meeting of the Central Appendicitis Committee of the Southern Medical Association with all state chairmen which

was held November 22. The meeting was to prepare the campaign plans for the reduction of acute appendicitis in the South.

Dr. L. R. DeBuys participated in a round-table discussion on prenatal care sponsored by the Children's Bureau of the Department of Labor in Washington, December 2.

The Louisiana Association of Public Health Workers met in Shreveport at the Washington-Youree Hotel, December 4-6. Drs. Albert E. Casey, Branch J. Aymond, George McCoy and W. Harvey Perkins presented papers. Dr. James T. Nix presented two papers. Dr. George H. Hauser held round-table discussions Monday and Tuesday afternoons for the laboratory workers and directors to discuss laboratory problems. Drs. Owen F. Agee, R. Alec Brown, Lee R. Centanni, Joseph A. O'Hara, Robert W. Todd and Virginia E. Webb attended the meeting.

Dr. Roy H. Turner was elected secretary of the section on medicine of the Southern Medical Association at the recent meeting held in Memphis.

Dr. Hilliard E. Miller has been appointed to the Board of Regents of the American College of Surgeons for a three-year term.

Dr. Rupert E. Arnell was elected to the Board of Directors of the Child Welfare and Community Health Association and has been appointed Director of the Maternity Service.

At the meeting of the Southern Surgical Association, which was held in Augusta, Ga., December, 5-7, Dr. Alton Ochsner was re-elected Secretary of the Association. Drs. Rudolph Matas, Mims Gage, Howard Mahorner, and Ambrose Storck presented papers at this meeting, and Dr. Guy A. Caldwell was made a member of the Association.

Dr. H. Ashton Thomas addressed the members of the Fifth District Medical Society at Monroe on December 5. His subject was "Rhinologic and Otologic Problems of the General Practitioner."

The following program was given at the joint meeting of the New Orleans Gynecological and Obstetrical Society and the Mercy Hospital Staff, Wednesday, December 6: "Upper Urinary Tract Infection" by Dr. Max Green; "Urethral Caruncle" by Dr. Philips J. Carter; "Granuloma Venereum of the Cervix" by Dr. Rupert E. Arnell; "Criteria for the Management of Toxemia of Pregnancy" by Dr. William F. Guerriero.

The following doctors attended the meeting of the Southern Surgical Association at Augusta, Georgia, December 5-7: Drs. Isidore Cohn, Joseph

A. Danna, Mims Gage, Lucian H. Landry, Howard R. Mahorner, Rudolph Matas, Hilliard E. Miller, Alton Ochsner, James D. Rives and Ambrose H. Storck.

Dr. Malcolm T. MacEachern of Chicago, associate director of the American College of Surgeons, and his assistant, Dr. E. W. Williamson, spent a week in New Orleans completing arrangements for the Southern sectional meeting of the College here January 17-19. Dr. Mims Gage is general chairman for this meeting.

At the meeting of the Lafourche Valley Medical Society held at Houma, December 6, the following program was presented: "The Treatment of Lobar Pneumonia" by Dr. Carlo J. Tripoli; "Sacral Analgesia in Gynecology" by Dr. H. Vernon Sims.

A demonstration for rapid sputum typing for pneumonia was presented by Dr. Tripoli.

Dr. James K. Howles presented a paper at the quarterly meeting of the Seventh District Medical Society held at Opelousas, December 7. The subject of his paper was "Management of Common Skin Conditions Seen in General Practice."

Drs. Charles S. Holbrook and Leon J. Menville read papers before the meeting of the Third District Medical Society at New Iberia, December 7. The subject of Dr. Menville's paper was "Present Day Methods of Diagnosing Tumors of the Breast." Dr. Holbrook's paper was "Differentiating Depressive Reactions from Somatic Diseases."

Dr. P. T. Talbot attended the meetings of the Third District, Seventh District and the Lafourche Valley medical societies in the interest of the Louisiana State Medical Society.

Members attending the annual meeting of the Southeastern Branch of the American Urological Association in Biloxi, December 7-9, were Drs. Edgar Burns, Hugh T. Beacham, Max M. Green, Roger J. Mailhes, John G. Menville, and Robert F. Sharp.

Dr. Wilmer Baker attended the meeting of the American Society of Anesthetists at Los Angeles, December 14-16.

#### TREASURER'S REPORT

Actual Book Balance 10/31/39.....	\$3,360.25
October credits .....	718.17
Total credits .....	\$4,078.42
November expenditures .....	452.91
Actual Book Balance 11/30/39.....	\$3,625.51

#### LIBRARIAN'S REPORT

During November, 84 volumes have been added to the Library. Of these 54 were acquired by binding, 6 by subscriptions, 16 by gift and 8 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is appended to this report.

Members of the staff have collected material on the following subjects at the request of physicians:

Convulsions.

Hobbies of physicians.

Epidemiology of rheumatic heart disease.

Relation of air conditioning to sinusitis.

Gout.

Incidence of chorea.

Human bites.

Undescended testicle—operative treatment.

Medical treatment of amebic abscess of liver.

Benign ulcer of the esophagus.

Multiple polyposis of the stomach.

Our records show that 1,062 volumes were loaned to physicians during the month. An additional 1,009 were loaned to students for overnight use, giving us a total circulation of 2,071. These figures do not include the great use of books and journals within the Reading Rooms.

#### NEW BOOKS

Christopher, Frederick, ed.: Textbook of Surgery, 1939.

American Neurological Association Transactions, 1939.

American Psychoanalytic Association Bulletin, 1938-39.

Manson-Bahr, Philip: Dysenteric Disorders, 1939.

Haden, R. L.: Principles of Hematology, 1939.

Whillis, James: Elementary Anatomy and Physiology, 1939.

Yeomans, F. C.: Sclerosing Therapy, 1939.

McLellan, F. C.: Neurogenic Bladder, 1939.

American Can Company: Canned Food Reference Manual, 1939.

International Cancer Congress: Abstracts of Papers, 1939.

National Foundation for Infant Paralysis: Infantile Paralysis, 1939.

Stimson, A. M.: The Communicable Diseases, 1939.

Northwestern University Medical School: Occupational Disease Symposium, 1938.

Cabot, R. C.: Physical Diagnosis, 1939.

Gilbert C. Anderson, M. D.,  
Secretary.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

## CALENDAR

New Orleans Graduate Medical Assembly	February 26-29, 1940	New Orleans.
Louisiana State Medical Society	April 22-24, 1940	New Orleans.

## PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in March	Jackson.
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

## THE PRESIDENT'S LETTER

Dear Members:

I thought that the Society might be interested in a report of the activities of the president, and his visits about the state.

On September 21, the Seventh District Society met at Lake Charles, to reorganize their Society, and there was a large crowd present. On the program were Dr. Ochsner, and two members of his staff, Drs. DeBakey and Echols, who presented a most interesting program. The president was called upon, and made a few feeble remarks, hardly being able to talk after such a banquet as was given us.

The next meeting was that of the Fourth District at Shreveport. Here again, a banquet was the order of the day, and most delicious fried chicken was served. Dr. Donovan C. Browne presented a paper on gastroenterology, and a physician from the Michael Reese Serum Center, Chicago, presented a paper on the various serums in use today; a most interesting paper. There is a great interest in the Fourth District in our Society, and the meeting was well attended. Again, a few remarks were made by the president.

Then followed a trip to the neighboring State of Arkansas, to read a paper on "Latent Scurvy" before the Fifth District (Arkansas) Society. Appearing on the program were Dr. Charles W. Mayo, of Rochester, Minn., and Dr. William Tibbetts, of Texarkana, Ark. In the morning of this day, the Council of the Arkansas Society met, and invited me to attend, together with Dr. Barrow, of Shreveport. At this meeting were Dr. Al Buchanan, President of the Arkansas State Medical Society, and Dr. L. H. Reeves, President of the Texas State Medical Society. The councilor of the district, Dr. R. B. Robins, had planned and executed a most interesting series of entertainments for all of us. In the evening, an open forum was held at the Municipal Auditorium, and all the guests speakers were again called on for short talks. I was given a card with the question sent in by someone in the audience: "Are you in favor of compulsory physical examinations before marriage? Please give the reasons for your answer."

The answer was in the affirmative. There is no law in that state requiring pre-marital examinations. We are only 50 per cent better here, in that we only require that the male be examined.

A meeting of the Executive Committee was held on October 21, at which time the question of making plans under which the venereal disease control, with special emphasis placed on syphilis, was discussed, and Dr. Ford S. Williams, of the State Board of Health, and Dr. Heller, U. S. Public Health Service, appeared before the committee. There were some differences in the plan submitted by the Board of Health, and that of the Executive Committee, so a sub-committee from the Executive Committee was appointed to confer with Dr. Williams and his confrères; Dr. M. D. Hargrove, of Shreveport, is chairman of this committee.

I had almost overlooked the meeting of the Eighth District Society, probably due to the fact that this is held at home and I was not a visitor. Dr. Sanford, Professor of Medicine at the University of Tennessee, spoke on "Hypertension," one of the best presentations we have ever heard. Dr. Kepler, of Rochester, Minn., presented the subject of "Obesity," and said that the best way to overcome at least 90 per cent of the cases was "less eating and more work," a prescription that is simple, but often hard to get a fat man to follow. Dr. Donovan C. Browne had a fine paper on gastroenterology. A banquet that evening ended the day. The committee even made the president pay for his dinner, but exempted the guests. Is this fair, I ask you?

On November 21, the Farm Security Administration had a convention at Alexandria, and requested that I make a few remarks, which I did.

On December 4, the Louisiana Association of Public Health Workers began their convention at Shreveport, and asked that a few remarks be made by the president at the opening meeting, and later, at 8 p. m., an address on "Maternal Welfare" at the open meeting, held at Byrd High School Auditorium. I survived the double ordeal, and had a pleasant time in between. Dr. Barrow, of Shreveport, was kind enough to entertain us,



together with Dr. J. T. Nix, of New Orleans, at a luncheon at the Washington-Youree Hotel, and had several of the Shreveport doctors to be with us.

Monroe entertained the Fifth District Society on December 5, having Dr. Thomas, of the L. S. U. Medical Center, Dr. Cook, of the Mayo Clinic, on the program. Dr. John B. Elliott, Jr., of New Orleans, made a most interesting and entertaining talk, telling about his experiences as a student, physician, teacher, and Army doctor, in a way that was both instructive and inspiring to all who heard him. Dr. J. Q. Graves, President of the Fourth District Society, presided. There was another banquet, and again, the president was called upon for a few remarks.

The program for the coming annual meeting is being rapidly filled, and it is my suggestion to anyone who might desire to appear on the program, to contact the chairman of the Section he is interested in without delay, for already three-fourths of the program has been filled.

Wishing the Editor, his staff, and every member of the Louisiana State Medical Society a Merry Christmas and a Happy New Year.

Sincerely yours,

D. B. Barber, M. D.,  
President.

#### BI-PARISH MEDICAL SOCIETY

A regular meeting of the society was held at the Rist Hotel on Wednesday, December 6, 1939, with the following members and their wives and guests present: Drs. and Mesdames C. S. Miller, A. D. Long, T. H. Pargen, E. M. Toler, S. L. Shaw, E. M. Robards, J. C. McMahan; Drs. N. F. Stafford and C. S. Toler; Mrs. J. O. Webb and Rev. and Mrs. Fulkerson.

After a delightful dinner, the business session was called at which officers were elected for the ensuing year: Dr. C. S. Miller, Jackson, president; Dr. A. D. Long, Jackson, vice-president; Dr. E. M. Toler, Clinton, secretary-treasurer; Dr. N. F. Stafford, Jackson, delegate; Dr. C. S. Toler, Clinton, alternate.

The next meeting will be held the first Wednesday in March, 1940, at the East Louisiana State Hospital at Jackson.

E. M. Toler, M. D., Sec.

#### DESOTO PARISH MEDICAL SOCIETY

A combined business and social meeting of the society was held at the Mansfield Sanitarium at 7 p. m. on December 12. After a delightful turkey dinner, served by the sanitarium, the business session took place, at which the following officers were elected for 1940: Dr. W. B. Hewitt, Mansfield, president; Dr. R. P. Thaxton, Mansfield, vice-president; Dr. R. A. Tharp, Mansfield, secre-

tary-treasurer and delegate; Dr. W. G. Jones, Manfield, alternate.

R. A. Tharp, M. D., Sec.

#### OUACHITA PARISH MEDICAL SOCIETY

The annual banquet of the Ouachita Parish Medical Society was held at the Virginia Hotel at 7 p. m. on December 14, with 33 members present. Business session followed.

Applications for membership from Dr. W. L. Smith and Dr. R. H. Frost were read and referred to the Membership Committee.

Dr. Pracher, retiring president, thanked the membership for their support during term of office. The financial report for the year was read and accepted.

Officers were elected for the ensuing year: Dr. D. T. Milam, Monroe, president; Dr. H. E. Guerriero, Monroe, vice-president; Dr. L. L. Titche, Monroe, secretary-treasurer; Dr. John Snelling, Monroe, delegate; Dr. M. W. Hunter, Monroe, alternate.

L. L. Titche, M. D., Sec.

#### THIRD DISTRICT MEDICAL SOCIETY

A regular quarterly meeting of the society was held at Deare's Tavern, New Iberia, on Thursday, December 7, 1939, at 7 p. m.

The scientific program consisted of two presentations: "Present Day Methods of Diagnosing Tumors of the Breast" by Dr. L. J. Menville, of New Orleans; "Differentiating Depressive Reactions from Somatic Diseases" by Dr. C. S. Holbrook, of New Orleans.

Officers were elected for 1940: Dr. R. S. Hernandez, Duson, president; Dr. L. M. Villien, Jeanerette, vice-president; Dr. J. J. Burdin, Lafayette, secretary-treasurer; Dr. O. E. Dalton, New Iberia, delegate; Dr. W. J. Yongue, Lafayette, alternate.

#### COMPONENT SOCIETY OFFICERS

1940

##### AVOYELLES PARISH

President: Dr. Philip Jeansonne, Plaquemine.  
Vice-President: Dr. L. A. Morrogh, Marksville.  
Secretary-Treasurer: Dr. K. A. Roy, Mansura.  
Delegate: Dr. K. A. Roy, Mansura.  
Alternate: Dr. A. M. Abramson, Marksville.

##### IBERIA PARISH

President: Dr. J. N. Pharr, New Iberia.  
Vice-President: Dr. E. T. Duncan, Weeks Island.  
Secretary-Treasurer: Dr. C. L. Mengis, New Iberia.  
Delegate: Dr. W. P. D. Tilly, New Iberia.  
Alternate: Dr. Leon Slipakoff, New Iberia.

##### PLAQUEMINES PARISH

President: Dr. B. H. Carlton, Port Sulphur.  
Vice-President: Dr. C. M. Johnson, Buras.  
Secretary-Treasurer: Dr. J. T. Reeves, Buras.

## RAPIDES PARISH

President: Dr. N. T. Simmonds, Alexandria.  
 First Vice-President: Dr. J. A. White, Jr., Alexandria.  
 Second Vice-President: Dr. C. P. Herrington, Alexandria.  
 Secretary-Treasurer: Dr. E. G. Cailleteau, Alexandria.  
 Delegates: Drs. H. O. Barker, M. H. Foster, A. L. Culpepper; all of Alexandria.

## RED RIVER PARISH

President: Dr. W. W. Gahagan, Coushatta.  
 Vice-President: Dr. L. S. Huckabay, Harmon.  
 Secretary-Treasurer: Dr. F. E. DePriest, Coushatta.  
 Delegate: Dr. L. S. Huckabay, Harmon.  
 Alternate: Dr. F. E. DePriest, Coushatta.

## SABINE PARISH

President: Dr. S. F. Fraser, Many.  
 Vice-President: Dr. O. L. Sanders, Converse.  
 Secretary-Treasurer: Dr. G. F. Weber, Many.  
 Delegate: Dr. L. H. Murdock, Zwolle.

## TERREBONNE PARISH

President: Dr. S. E. Ellender, Houma.  
 Vice-President: Dr. S. C. Collins, Houma.  
 Secretary-Treasurer: Dr. W. A. Ellender, Houma.  
 Delegate: Dr. T. I. St. Martin, Houma.

## WEBSTER PARISH

President: Dr. S. J. Feducia, Cotton Valley.  
 Vice-President: Dr. Byron L. Cook, Minden.  
 Secretary-Treasurer: Dr. B. A. Norman, Minden.  
 Delegate: Dr. W. C. Summer, Minden.  
 Alternate: Dr. John Pugh, Cotton Valley.

## FOURTH DISTRICT

President: Dr. C. R. Gowen, Shreveport.  
 Vice-President: Dr. W. H. Browning, Shreveport.  
 Secretary: Dr. N. J. Bender, Shreveport.

## COLLEGE OF SURGEONS

A Sectional Meeting of the American College of Surgeons will be held in New Orleans, Louisiana, with headquarters at the Roosevelt Hotel, on January 17-19, 1940. The following states will participate: Louisiana, Mississippi, Alabama, Georgia, Florida, Tennessee, Kentucky, Missouri, Arkansas, Texas, Kansas, Oklahoma.

The Committee on Local Arrangements, which is making plans for an exceptionally interesting meeting, has for its officers: Dr. Mims Gage, Chairman; Dr. Ambrose H. Storck, Secretary.

A general outline of the program follows:

Wednesday, January 17		11:30-12:30	Midday panel discussions: Cranio-cerebral injuries; abnormal uterine bleeding; delayed union and non-union of fractures; sinusitis.
7:30-10:00	Registration and general information.	1:00- 2:00	Medical motion pictures, general surgery.
8:00-11:00	Operative and non-operative clinics; general surgery and the surgical specialties.	2:00- 4:00	Afternoon panel discussions: Prevention of postoperative pulmonary complications; intestinal obstruction; stomach surgery.
10:00-12:30	Hospital conference.	2:00- 5:00	Hospital conference.
		2:00- 5:00	Medical motion pictures, eye, ear, nose, and throat surgery.
		4:00- 5:00	Medical motion pictures, general surgery.
		5:00- 5:30	Meeting of Fellows.
		5:30- 6:00	Meetings of State Executive, State Credentials, and State Judiciary Committees.
		7:00- 8:00	Medical motion pictures, general surgery.
		7:30-10:00	Medical motion pictures, eye, ear, nose, and throat surgery.
		8:00-10:00	Scientific meeting, general surgery.
		8:00-10:00	Hospital conference.
Thursday, January 18			
		7:30-10:00	Registration and general information.
		8:00-11:00	Operative and non-operative clinics; general surgery and the surgical specialties.
		10:00-12:30	Hospital conference.
		11:30-12:30	Midday panel discussions: Cancer therapies; varicose veins; pre- and postoperative drugs used in gastrointestinal surgery; glaucoma.
		12:30- 2:00	Luncheon, Governors of the College.
		1:00- 2:00	Medical motion pictures; general surgery and eye, ear, nose and throat surgery.
		2:00- 4:00	Afternoon panel discussions: Biliary tract surgery and the bad risk case; treatment of infections of the genitourinary tract; carcinoma of the colon.
		2:00- 4:00	Scientific meeting, eye surgery.
		2:00- 4:00	Scientific meeting, ear, nose and throat surgery.
		2:00- 4:00	Hospital conference.
		4:00- 6:00	Conference on Graduate Training for Surgery.
		4:00- 6:00	Medical motion pictures; general surgery and eye, ear, nose and throat surgery.
		6:30- 8:00	Dinner.
		8:00-10:00	Scientific meeting, general surgery.
		8:00-10:00	Scientific meeting, eye surgery.
		8:00-10:00	Scientific meeting, ear, nose and throat surgery.
		8:00-10:00	Motion pictures for hospital personnel.

Friday, January 19

- 7:30-10:00 Registration and general information.
- 8:00-11:00 Operative and non-operative clinics, eye, ear, nose and throat surgery.
- 9:00-11:00 Fracture clinic.
- 9:00-11:00 Cancer clinic.
- 10:00-12:30 Hospital conference.
- 11:00-12:00 Conference of Regional Fracture Committees.
- 12:00- 1:00 Midday panel discussions: Appendicitis; immediate repair of cutaneous defects; thyroid surgery.
- 1:00- 2:00 Medical motion pictures; general surgery and eye, ear, nose and throat surgery.
- 2:00- 4:00 Group clinical conferences: Orthopedics, urology, obstetrics and gynecology, ophthalmology, otorhinolaryngology, thoracic surgery, neurological surgery, cancer clinic (a demonstration).
- 2:00- 4:30 Hospital conference—Study Tour of Charity Hospital.
- 4:00- 6:00 Medical motion pictures; general surgery and eye, ear, nose and throat surgery.
- 7:00-10:00 Medical motion pictures, general surgery.
- 8:00-10:00 Meeting on Health Conservation.

A number of distinguished visiting surgeons from various parts of the country will address the sessions. Among these will be: Dr. George P. Muller of Philadelphia, president of the American College of Surgeons; Dr. Frank E. Adair of New York, chairman of the Committee on Cancer of the College; Dr. Frederic A. Besley of Waukegan, secretary of the College; Dr. Arthur W. Allen of Boston, lecturer in surgery at Harvard University Medical School; Dr. Louis H. Clerf of Philadelphia, professor of laryngology and bronchoscopy, Jefferson Medical College of Philadelphia; Dr. Edward D. Churchill of Boston, John Homans professor of surgery, Harvard University Medical School; Dr. Claude C. Coleman of Richmond, clinical professor of neurological surgery, University of Virginia Department of Medicine; Dr. William J. Engel of Cleveland, surgeon, Cleveland Clinic Hospital; Dr. J. Deryl Hart of Durham, North Carolina, professor of surgery, Duke University School of Medicine; Dr. William H. Luedde of St. Louis, director, department of ophthalmology, St. Louis University School of Medicine; Dr. Michael L. Mason of Chicago, associate professor of surgery, Northwestern University Medical School; Dr. Carl H. McCaskey of Indianapolis, professor of otolaryngology, Indiana University School of Medicine; Dr. John O. McReynolds of Dallas, ophthalmic and aural surgeon, St. Paul's and Methodist hospitals, Scottish Rite Hospital for Crippled Children; Dr. Charles

L. Scudder of Boston, consulting surgeon, Massachusetts General Hospital; and Dr. Malcolm T. MacEachern of Chicago, associate director, American College of Surgeons.

A feature of the meeting will be the dinner on Thursday evening, January 18, in honor of Dr. Rudolph Matas, of New Orleans, in his 80th year. This will be held in the Ballroom of the Roosevelt Hotel, with Fellows of the College and guests in attendance.

A great attraction for visitors will be the opportunity to inspect the new State of Louisiana Charity Hospital, which has 3,000 beds and costs \$12,500,000. Adjacent to the hospital on one side is the Tulane University Medical School and on the other, the Louisiana State University Medical Center. The entire group is very convenient to the headquarters hotel. The facilities of these institutions, together with those of the other fine hospitals of New Orleans, will make an excellent setting for the series of operative and non-operative clinics in general surgery and the surgical specialties which will be held each day of the meeting.

Of special interest will be a series of Group Clinical Conferences, to be conducted by visiting surgeons, at the Charity Hospital on Friday afternoon, January 19. The subjects will be orthopedics, thoracic surgery, obstetrics and gynecology, urology, neurological surgery, ophthalmology, otolaryngology, and a cancer clinic.

In addition to the clinics and clinical demonstrations and conferences at the hospitals, scientific sessions, conferences, and panel discussions will be held at the headquarters hotel. Among the subjects to be discussed are cancer, fractures, thyroid surgery, varicose veins, intestinal obstruction, craniocerebral injuries, sinusitis, stomach surgery, prevention of postoperative pulmonary complications, and many more limited topics. Medical motion pictures will be shown daily. These will cover surgical technic and other aspects of general surgery, eye, ear, nose and throat surgery, and the other specialties.

A session of general interest will be the Conference on Graduate Training for Surgery on Thursday afternoon, January 18. At this session the program of the American College of Surgeons in graduate training for general surgery and the surgical specialties will be described, and a report made on the accomplishments to date. Talks on significant phases of the subject will also be presented, followed by general discussion.

The program for the Hospital Conference which will also be held during the three days of the Sectional Meeting will cover a wide variety of subjects of interest to hospital personnel, and will include a special program of medical motion pictures on hospital topics. On Friday afternoon a study tour of the Charity Hospital is scheduled.

Educational and scientific exhibits will be placed in the ballroom of the headquarters hotel. Daily

bulletins will be issued listing the various sessions, conferences, clinics, and other events of the day.

The meeting will close with a session open to the public on Conservation of Health. This meeting will be held in the ballroom of the hotel.

The medical profession at large, as well as hospital trustees, superintendents, nurses, and other hospital departmental personnel, will find a great deal to interest them at this meeting. Members of the State Medical Association are most cordially invited to attend. There will be no registration charge.

Louisiana State Executive Committee,  
Secretary:

Mims Gage, M. D., New Orleans.

Counselors:

William L. Atkins, M. D., Shreveport,

James Q. Graves, M. D., Monroe,

Ambrose H. Storck, M. D., New Orleans.

#### MISSISSIPPI VALLEY MEDICAL SOCIETY

The sixth annual meeting of this organization will be held in Rock Island, Ill., September 25-27, 1940.

#### NEWS ITEMS

The National Conference on Medical Service will hold its fourteenth annual meeting at the Palmer House, Chicago, on February 11, 1940. The program includes symposia on group medical care and medical welfare programs. All state medical societies have been asked to send representatives to this conference.

The United States Chapter of the International College of Surgeons will hold its fourth annual assembly in Venice, Fla., February 11-14, 1940. Speakers well known in this country and in Brazil, Canada, Cuba, Mexico and Turkey will lecture.

The general oral and pathologic examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board of Obstetrics and Gynecology meeting in Atlantic City, N. J., on June 8-11, 1940.

The eighth American Scientific Congress will be held in Washington, May 10-18, 1940, in conjunction with the fiftieth anniversary of the founding of the Pan-American Union. The Congress will be divided into sections of which number five will be of interest to the medical profession, namely, that having to do with public health and medicine.

Gifts of approximately \$1,500,000 to Northwestern University and of approximately \$1,000,000 to the University of Chicago are announced by the Trustees of the Estate of Clara A. Abbott, who died in 1924. Both gifts will be used for medical and chemical research.

Dr. Charles James Bloom addressed the Mothers' Club of the Holy Name of Jesus School on December 6, on the subject of "The Common Cold."

The Louisiana State Pediatric Society held a meeting at the Metairie Golf Club in New Orleans, October 26, 1939. A very interesting paper was presented by Dr. R. T. Lucas of Shreveport on "Convalescent Serum." The discussion of this paper was opened by Dr. George Hauser of New Orleans.

Wm. C. Rivenbark, M. D.,  
Secretary.

#### REFRESHER COURSES IN OBSTETRICS

A cordial invitation is extended to all physicians of the Second, Third, Sixth, Seventh and other Districts to attend Refresher Courses in Obstetrics. These are being sponsored by the Louisiana State Medical Society and the Maternal and Child Health Division of the Bureau of Parish Health Administration, Louisiana State Board of Health. Lectures will be given as follows:

Reserve, La.	Home of Dr. Donaldson
Monday, January 8, 1940—7:00 p. m.	
Monday, January 15, 1940—7:00 p. m.	
Monday, January 22, 1940—7:00 p. m.	
Monday, January 29, 1940—7:00 p. m.	
Monday, February 12, 1940—7:00 p. m.	

Hammond, La.	City Hall
Tuesday, January 9, 1940—7:00 p. m.	
Tuesday, January 16, 1940—7:00 p. m.	
Tuesday, January 23, 1940—7:00 p. m.	
Tuesday, January 30, 1940—7:00 p. m.	
Tuesday, February 13, 1940—7:00 p. m.	

Donaldsonville, La.	Elks Club
Wednesday, January 10, 1940—7:00 p. m.	
Wednesday, January 17, 1940—7:00 p. m.	
Wednesday, January 24, 1940—7:00 p. m.	
Wednesday, January 31, 1940—7:00 p. m.	
Wednesday, February 14, 1940—7:00 p. m.	

Lake Charles, La.	St. Patrick's Hospital
Thursday, January 11, 1940—7:00 p. m.	
Thursday, January 18, 1940—7:00 p. m.	
Thursday, January 25, 1940—7:00 p. m.	
Thursday, February 1, 1940—7:00 p. m.	
Thursday, February 15, 1940—7:00 p. m.	

New Iberia, La.	City Hall
Friday, January 12, 1940—7:00 p. m.	
Friday, January 19, 1940—7:00 p. m.	
Friday, January 26, 1940—7:00 p. m.	
Friday, February 2, 1940—7:00 p. m.	
Friday, February 16, 1940—7:00 p. m.	

## OUTLINE OF LECTURES

1. Pre- and Postnatal Care  
Conduct of Normal Labor  
Analgesia and Anesthesia  
—Dr. T. B. Sellers.
2. Breech and Forceps Deliveries  
Transverse Presentations  
Prolapse of Cord  
—Dr. Joseph Reddoch.
3. Toxemia of Pregnancy  
—Dr. H. V. Sims.
4. Complications of Pregnancy  
Syphilis  
Heart Disease  
Tuberculosis  
Hookworm and Other Intestinal Parasites  
Pneumonia  
Malaria  
—Dr. E. L. King.
5. Hemorrhage and Infections  
—Dr. Peter Graffagnino.

The lectures will begin promptly at 7 o'clock and continue for approximately an hour and a half. Following each lecture there will be a round-table discussion. If you are doing any obstetrics in your practice it is felt that this course will be of considerable value to you.

Much effort has been put forth in planning this work so as to make it practical and of real value to every physician who attends.

## EXTENSION COURSES

The Graduate School of Medicine of Louisiana State University presented four extension programs in Louisiana during the month of December. On Thursday, December 5, Dr. Ashton Thomas appeared before the Fifth District Medical Society with a talk on "Rhinologic and Otolologic Problems of the General Practitioner." On Tuesday, December 12, a Symposium on Pneumococcal Lobar Pneumonia was given before the Terrebonne Parish Medical Society at which Dr. John R. Schenken spoke on the "Pathology and Pathogenesis of Pneumonia." Dr. Robert Bayley spoke on the "Diagnosis and Differential Diagnosis of Pneumonia" and Dr. J. O. Weilbaeher, Jr., spoke on "The Treatment of Pneumonia." On Wednesday, December 13, Dr. Daniel N. Silverman spoke on "Carcinoma of the Stomach" before the East Baton Rouge Parish Medical Society at Baton Rouge, Louisiana. On Friday, December 15, a Symposium on Skin Diseases was given before the Jefferson Davis Parish Medical Society at Jennings, Louisiana. The following doctors participated in the program: Dr. James K. Howles spoke on "Diagnosis of Mycotic Fungus Infections of the Skin and Their Treatment." Dr. James W. Tedder spoke on "The Ten Most Common Skin Diseases." Dr. Charles Barrett Kennedy spoke on "Common Vesicular Dermatoses of the Hands and Feet with Diagnosis and Treatment."

## PROGRESS IN TREATMENT OF PNEUMONIA

In summarizing the great advances that have been made in the development of sulfonamide derivatives for the treatment of bacterial infections, Lord (New England J. Med., 221: 570, 1939) points out that reduction in the fatality rate of pneumonia from 25 per cent to 7 per cent has been brought about in a large group of adults treated with sulfapyridine. The combined use of sulfapyridine and antiserum will doubtless prove more effective than either alone.

It is desirable to begin treatment with sulfapyridine as soon as the diagnosis is established. If no sputum is available, examination may be made of material taken on a pharyngeal or laryngeal swab, and blood cultures should routinely be made at suitable intervals. In view of the possibility of toxic reactions, blood examinations should include hemoglobin, red cell, and white cell determinations and differential counts.

## INFECTIOUS DISEASES IN LOUISIANA

For the week ending November 18, the forty-sixth week of the year, there were listed in the office of the state epidemiologist, Dr. J. A. O'Hara, 122 cases of syphilis, 46 of pneumonia, 31 of cancer and pulmonary tuberculosis, 14 of scarlet fever, 11 of gonorrhoea and 10 of influenza. Two typhus fever cases were reported from Ouachita Parish. For the week which came to a close November 25, the following diseases were reported in numbers greater than ten: 72 cases of syphilis, 43 of whooping cough, 28 of cancer, 24 of pneumonia, 23 of pulmonary tuberculosis, 13 of diphtheria and 12 of scarlet fever. There were three other cases of typhus fever reported, one from Orleans and two from Ouachita Parish. For the next week, which closed December 2, there were listed in the weekly report 120 cases of syphilis, 61 of pulmonary tuberculosis, 39 of whooping cough, 35 of pneumonia, 31 of scarlet fever, 27 of typhoid fever, 22 of chickenpox, 21 of cancer, 18 of gonorrhoea and 17 of diphtheria. Three cases of typhus fever were reported this week, originating in Calcasieu, Jefferson Davis and St. Mary parishes. The sharp increase in the incidence of typhoid fever is unexplainable. Orleans Parish reported 19 of these cases but six were imported; no other parish reported more than two. For the last week for which figures are available, namely, that which terminated December 9, syphilis, as usual, led all other diseases with a sharp increase over the preceding week with 230 cases listed; followed in order of frequency by these disorders: 40 cases of pneumonia, 36 of gonorrhoea, 32 of cancer, 29 of whooping cough, 24 of pulmonary tuberculosis, 18 of scarlet fever, 11 of chickenpox. Six cases of typhus fever were discovered this week, one from Caddo, two from Calcasieu and three from Orleans parishes.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending November 11 there were 123 deaths in the City of New Orleans as contrasted with 137 the previous week. Broken down these figures show that there were 65 white and 58 negro and 13 infant deaths. There was a big jump in the death rate for the week of November 18, 172 deaths being listed, of which 111 were white and 61 negro. There were 21 infant deaths, the majority of which were among the negro babies. The death rate was still increased the week of November 25, 180 former citizens of New Orleans expiring this week, 100 of whom were white and 80 negro. This large number of deaths was not accompanied by a proportionate infant mortality as only nine infants died this particular week. One hundred and sixty deaths were listed for the week which closed December 2. This week the relatively large number of deaths may be attributed in part to a high infant mortality as 24 infants expired in this period of time. The ratio between the two races was as two is to one. There was a slight diminution in the number of deaths for the week which finished December 9, 95 white people and 56 negro succumbing for the total of 151 deaths, 10 of which were in infants.

## CORRESPONDENCE

United States Department of Agriculture  
Farm Security Administration  
Donaghey Trust Building  
Little Rock, Arkansas

Dr. P. T. Talbot, Secretary  
Louisiana State Medical Society  
New Orleans, Louisiana

Dear Dr. Talbot:

There is enclosed for your information and files, a report on the operation of the group medical services projects in Louisiana, from date of beginning to October 1, 1939. These figures are taken from records in the various parish offices which are available to all members of parish or state medical societies for inspection.

We have met with some other medical societies to discuss possibilities of setting up funds for payment of physicians' bills in this manner. Tentative agreements have been worked out in a number of additional parishes, based strictly in conformity to the policy approved by your Council in October, 1938.

You will note that the "contract" plan in Pointe Coupee Parish is being changed, with the unanimous consent of the members of the parish medical society, to conform to the regular policy agreed upon by the Council.

A complete list of all new contacts will be furnished you in the near future.

It has been our happy privilege to confer with Dr. Barber, President of the Louisiana State Med-

ical Society. He accepted an invitation to address the Louisiana State Conference of about three hundred Farm Security Administration workers, in Alexandria, recently. Our personnel was delighted and inspired by his able and sympathetic discussion of "The Tenant Farmer as Viewed by the Physician."

The Farm Security Administration is indeed appreciative of your kind offices and for the sincere consideration and helpful assistance being given by the organized medical profession, generally, throughout the state, in trying to provide medical care for these low income farm families at a cost they can afford to pay.

Yours sincerely,

Steele T. Kennedy,  
Health Specialist.

Enclosure.

## PERCENTAGE OF MEDICAL BILLS PAID IN THE VARIOUS GROUP MEDICAL CARE PARISHES IN LOUISIANA

Webster Parish: 7 months' operation, March 1, to October 1. Average loan per family for one year \$12.04. Percentage of all bills paid to October—78.5 per cent.

Lafayette Parish: Average loan per family \$15.00. Percentage paid, 6 months, April 1 to October 1—100 per cent.

Natchitoches Parish: 4 months' operation, June 1 to October 1. Average loan per family \$15.00. Percentage of all bills paid during period of operation—71 per cent.

St. Martin Parish: 4 months' operation, June 1 to October 1. Average loan per family \$15.00. Percentage of all bills paid to date—57 per cent.

Madison Parish: 7 months' operation, March 1 to October 1. Average loan per family \$17.00 plus. All prescribed drugs included, with understanding that all drug bills be paid 100 per cent and the remaining amount each month prorated on physicians' bills. Total percentage of all bills paid by months: March, 51 per cent; April, 30 per cent; May, 37 per cent; June, 59 per cent; July, 59 per cent; August, 52 per cent; September, 72 per cent.

Avoyelles Parish: Average loan per family \$17.00 plus. All prescribed drugs included. Payments are made every four months. First and only payment covering the period from April 1 to August 1, was 69 per cent plus, of all bills submitted.

St. Helena Parish: Rate of loans: average \$17.00 per family. Maximum \$20.00. Services include physical examination, physicians' services and prescribed drugs. Has operated 3 months, July, August and September. Paid 78 per cent of all bills.

Pointe Coupee Parish: Individual contract plan, with 1 physician and 250 families participating. All drugs included. Annual cost per family \$21.00 to \$27.00. This will be charged to the pool plan after January 1, with perhaps 400 or more families participating.

██████████

**AMEDEE B. GRANGER**  
(1879-1939)

The many friends of Dr. Amédée Granger were shocked to hear of his sudden death on December 15 as a result of coronary thrombosis. Dr. Granger was a native of New Orleans and descendant of an old French family. He had been head of the Department of Radiology at Charity Hospital since 1905 and recently had become full-time head of this important division of the institution. He was a member of the faculty of Louisiana State University. For his splendid studies in perfecting the technic of various roentgenologic examinations Dr. Granger had received many honors, including the Legion d'Honneur. He was a former president of the Orleans Parish Medical Society, first vice-president of the Radiological Society of North America and held other elective offices in organized medicine and in numerous societies of his specialty.

—————

**JOSEPH N. ROUSSEL**  
(1871-1939)

One of the most prominent dermatologists of the city died suddenly December 15 at the age of 68. His death was attributed to coronary occlusion. Dr. Roussel, a native of Louisiana, graduated from Tulane in 1896. In 1903 he was appointed dermatologist of Touro Infirmary, a position which he held for many years. He had been also senior Visiting Physician at Charity Hospital, Dermatology Division. In 1931 he was appointed Professor and Head of the Department of Dermatology at Louisiana State University, becoming Professor Emeritus in 1937. A man of great popularity, Dr. Roussel was interested in various civic activities. His loss will be felt keenly by his innumerable friends and patients.

—————

**DAVID L. WATSON**  
(1868-1939)

Dr. Watson died on December 18 at the age of 71 as a result of a fall down the stairs at his residence. He was one of the best known of the older practitioners of the city. He had a large practice and was active up until the past few years in the Orleans Parish Medical Society.

██████████

**WOMAN'S AUXILIARY**

**Louisiana State Medical Society**

President—Mrs. S. M. Blackshear, New Orleans.  
President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

—————

New Orleans, Louisiana,  
December, 1939.

Dear Auxiliary President:

A letter to Dr. P. T. Talbot, Secretary of the Louisiana State Medical Society, from Dr. Olin West, Secretary of the A. M. A., was received, and Dr. J. H. Musser, Chairman of our Advisory Council, asked that we take some action regarding it.

Information has come to the office of the A. M. A., to the effect that the American Federation of Women's Clubs is attempting to secure approval of the Wagner Bill, or of some similar measure, by as many as possible of all of the women's organizations affiliated with the Federation; and that a second White House Conference, such as was held in Washington several months ago, has been or will be immediately called to meet in Washington in January, probably about the eighteenth or twentieth, for the purpose of bringing concerted effort to bear on Congress, when they meet early in 1940, for the enactment of the Wagner Bill or some similar legislation.

If, after taking this up with the president of your local medical society, he deems it appropriate and advisable, it is our suggestion that at your very next meeting you obtain a doctor who is well qualified as an interesting speaker, with especial knowledge of this subject, to give an address on "Why the Medical Profession is Opposed to the Wagner Bill and Similar Legislation"; and that you invite to the meeting the president or a representative of each woman's club in your community which is a member, or affiliated with, the American Federation of Women's Clubs.

Please give this your immediate and serious attention.

Sincerely yours,

Mrs. S. M. Blackshear, President,  
Woman's Auxiliary to the Louisiana  
State Medical Society.

—————

**PARISH AUXILIARY NEWS**

**CADDO**

The Caddo Parish Auxiliary is carrying on an interesting and successful year under the leadership of Mrs. Clifford P. Rutledge. With a well organized program of activities the Auxiliary is progressing with the following projects:

(1) Every member a qualified voter; (2) The Pines Preventorium; (3) more subscriptions to Hygeia; (4) observation of Doctors' Day; (5) gifts to the Indigent Physicians' Fund.

An important annual event was the Christmas dinner party on December 13, in Shreveport, when the Auxiliary entertained the members of the medical society. During the evening the hundred or more guests were entertained by the singing of Christmas carols, the words being shown on a screen; with other amusements which followed, it was a delightful affair.

Mrs. N. Judson Bender,  
Publicity Chairman.

---

#### OUACHITA

The members of Ouachita Parish Auxiliary, of which Mrs. Courtland P. Gray is president, are active this year with several needed and successful projects. Among these are the purchase of magazines for the new Cooley Tuberculosis Sanatorium and the annual sale of Christmas seals. This group is also trying to place Hygeia in every doctors' office.

Following the custom of other years, the Auxiliary entertained the Ouachita Parish Medical Society at a Christmas supper party, which took the place of the regular meeting.

Mrs. J. W. Cummins,  
Publicity Chairman.

---

#### NOTES ON THE SOUTHERN MEDICAL MEETING

The sixteenth annual meeting of the Woman's Auxiliary to the Southern Medical Association met in Memphis, November 21-23, 1939, at the Peabody Hotel, with Wrs. W. K. West, president, presiding in a most efficient and charming manner. An address of welcome was given by Mrs. Willis C. Campbell, of Memphis, and responded to by Mrs. Harry V. Thomas of Clarksburg, West Virginia. Greetings were extended by the presidents of the county and state auxiliaries, by the Woman's Auxiliary to the American Medical Association through Mrs. Rollo K. Packard, president, and by the Advisory Council of the Southern Medical Association: Dr. Walter E. Vest, president; Dr. Edgar G. Ballenger, chairman of council; Mr. C. P. Loranz, secretary-manager; and by Dr. Arthur T. McCormack, president-elect, who addressed the Auxiliary with his usual ability to say pretty things to the ladies, and about them.

A report from Mrs. S. A. Collom, Sr., of Texarkana, Texas, was read by one of the alternates, as she was not present. Mrs. Collom has been doing work on research and invites all county auxiliaries to call upon her whenever they need material for programs, or information concerning the

Auxiliary and its work. She will lend the material to those desiring it.

Mrs. Luther Bach of Bellevue, Kentucky, Chairman of the Jane Todd Crawford Committee, told of the success the project is having and urged all states to contribute as the Southern Medical Auxiliary is sponsoring this work. She urged all states who have not signified how they want the fund used please to get this information to her at once. Small miniature reproductions of the home of Jane Todd Crawford and literature on this subject were given out to each state president or her representative to be taken back home to be exhibited at the next state conventions.

Mrs. Harvey F. Garrison of Jackson, Mississippi, read the budget which has been limited by the Association to \$200. It delighted us all to see how far these Southern women can make this small amount of money go. The amount is allocated to the Auxiliary by the Southern Medical Association yearly, and all Southern Medical dues have been abolished. In this way the wife of each member of the Southern Medical Association is automatically a member of the Auxiliary and is welcome as such at all times.

Mrs. August A. Werner of St. Louis, Missouri, read a report on resolutions.

Mrs. Stephen C. McCoy of Louisville, Kentucky, gave a report of the records of which she is custodian. She invited all members who attend the meeting there next year, to get in touch with her if they are interested and she will gladly show them these records. They are in a fireproof box in one of the public buildings in Louisville.

Mrs. Arthur A. Herold of Shreveport, Louisiana, read a paper on "Pending Legislation of Interest to the Medical Profession." This was truly one of the outstanding numbers on the program and is such a splendid article that it should be printed where it can be reached by every member of the Auxiliary.

A very beautiful memorial ceremony was conducted by Mrs. Eustace A. Allen of Atlanta, Georgia. As the names of the deceased members were called, candles were lighted and burned throughout the touching tribute paid to those who have departed from this life.

The annual luncheon of the Auxiliary followed the morning session and was attended by three or four hundred women. Mrs. W. K. West presided, and delighted all with her spontaneous wit and gracious manner. The past presidents and state presidents were introduced. Then the "Parade of States" followed. Each state was represented by a speaker who for two minutes gave some outstanding contribution which had been made by her state to our Country, medical or otherwise. This was very enlightening and enjoyable. Many of the women were real press agents and made some of us quite envious of the states they represented.



Mrs. Rollo K. Packard gave a brief address and was responded to by Mrs. Charles P. Corn.

The usual Southern hospitality was extended by the Memphis women. They were on the job at all times taking the women to teas, dinners, sight-seeing drives, and making their stay one that will always be remembered as a high-light to add

to the many happy reunions enjoyed with the very genial Southern Medical Auxiliary.

Mrs. Wiley R. Buffington,  
New Orleans, Councilor for Louisiana.

Mrs. Edgar Burns,  
Press and Publicity Chairman.

## BOOK REVIEWS

*Proctology for the General Practitioner:* By Frederick C. Smith, M. D., M. Sc. (Med.), F. A. P. S. Philadelphia, F. A. Davis Company, 1939. Pp. 386. Price \$4.50.

This book is a general treatise which includes many broad statements directed to the general practitioner. There are so many other volumes that are of value to the student and specialist that it is considered safe to relegate this edition to the general practitioner for whom it was written.

WARREN H. HEBERT, M. D.

*Otolaryngology in General Practice:* By Lyman G. Richards, M. D. New York, The Macmillan Co., 1939. Pp. 352. Price \$6.00.

The essentials of otolaryngology are clearly and concisely presented and the style is adapted to easy reading. The text is concerned with the rudiments of otolaryngology and with the problems which the general man must face in his daily work. The aim of this book is to aid in arriving at a correct diagnosis and in the simpler cases the treatment is outlined. If the condition is beyond the scope of the general practitioner he is urged to refer the case to a competent otolaryngologist. The chapters on respiratory obstruction and hoarseness are particularly good.

This is a good book for a quick reference for the general practitioner.

F. E. LEJEUNE, M. D.

*The Rectum and Colon:* By E. Parker Hayden, A. B., M. D., F. A. C. S. Philadelphia, Lea and Febiger, 1939. Pp. 434. Price \$5.50.

The author has discussed the general subject of diseases of the rectum and colon without including unnecessary and unimportant details. Each pathologic condition has been emphasized in proportion to its relative frequency and importance. The various opinions expressed are based largely on the author's personal experience, augmented by a number of his colleagues at the Massachusetts General Hospital. No attempt has been made to include a complete bibliography.

The subject matter has been discussed in scholarly manner and there are certain chapters worthy of comment. The chapter with reference to pruritus ani is rather clear and concise although more attention should have been directed towards cleanliness and personal hygiene as important fac-

tors in etiology. He is of the opinion that there is no rectal or anal pathology in many of these cases. Such a statement is rather misleading unless it is further clarified.

Again, it is interesting to note the opinion of a surgeon with reference to the injection treatment of hemorrhoids. Here is the statement made by an individual qualified to carry out that form of treatment best adopted to the individual case: "To anyone who has had experience with both methods of treatment, it is obvious that each possesses advantages and disadvantages and that one should employ that form of therapy, which is best suited to the individual patient."

Very little discussion has been given to the colon and the important subject of cancer. Perhaps the book could have been titled, "The Rectum and Anus" instead of "The Rectum and Colon." This volume should be of value to the student or graduate, who is interested in this extremely important field of medicine.

WARREN H. HEBERT, M. D.

*Cancer of the Colon and Rectum; Its Diagnosis and Treatment:* By Fred W. Rankin, B. A., M. A., M. D., Sc. D., F. A. C. S., and A. Stephen Graham, M. D., M. S. (in Surgery), F. A. C. S. Springfield, Ill., Charles C. Thomas, 1939. Pp. 358. Price \$5.50.

All physicians interested in cancer of the colon should feel indebted to these authors for their most recent publication. They need no introduction as their past contributions speak for themselves. This volume is largely made up from the personal experience of the authors, but they have incorporated the views and experiences of other well-known surgeons from the British school of surgery.

The text is well written and illustrated and there are no omissions. Statistics and other data have been clearly stated as a reliable and accurate presentation of facts. A rather large, complete bibliography is included for those interested in reference work.

It is interesting to note the authors' view towards the routine use of intra-peritoneal vaccine. Suffice it is to say, in their experiences and with the methods used in their service, they were forced to conclude that intra-peritoneal vaccination is not the important factor in the reduction of mortality following colonic surgery. The present evidence

seems to indicate that decompression, hydration, and general rehabilitatory measures are the most potent factors in increasing the resistance to intraperitoneal infection.

Again, they have found inhalation anesthesia to increase the margin of safety and for this reason they have discontinued the use of spinal anesthesia.

Anyone interested in carcinoma of the larger bowel and rectum should welcome this volume. It is worthy of the highest praise and commendation. It represents the views of two men who have had a great deal of personal experience in this field of surgery.

WARREN H. HEBERT, M. D.

*John Howard (1726-90), Hospital and Prison Reformer: A Bibliography:* By Leona Baumgartner, M. D., Ph. D. Baltimore, Johns Hopkins Press, 1939. Pp. 79. Price \$1.00.

This is another in the fine group of reprints from the Bulletin of the History of Medicine issued by the Johns Hopkins Press. It is written in the "tradition of humanized bibliography" of Keyes, Fulton and Osler, and each item is fully and interestingly annotated. The volume will have a special appeal to those who are interested in "the history that good bibliography makes."

B. BERNARD WEINSTEIN, M. D.

*Surgical Applied Anatomy:* By Sir Frederick Treves. Philadelphia, Lea & Febiger, 1939. Pp. 748. Price \$4.50.

This tenth edition of a new, well established classic is thoroughly revised and brought up to date. Clear, concise and well written, this small volume contains a useful and ably organized summary of the facts of applied anatomy, and numerous useful comments on surgical hazards to be avoided. It may be recommended as a valuable and useful book.

B. BERNARD WEINSTEIN, M. D.

*Endocrinology in Modern Practice:* By William Wolf, M. D., M. S., Ph. D. Philadelphia, W. B. Saunders Co., 1939. Pp. 1077. Price \$10.00.

Those who have had occasion to employ the former (first) edition of Wolf's work, either as a reference volume or as a handbook, will be equally, if not more, delighted with the present one.

Dr. Wolf has encompassed an enormous amount of information within a relatively few pages. He has systematized his material exactly as before, but at the same time has made substantial additions in accordance with modern progress. The diagnostic tables and summaries at the end of each section, which characterized the preceding edition, have been retained and of course represent a valuable and exceedingly helpful method of presentation.

It is unnecessary to go into a detailed description of the thirty-three sections. They are to all intents and purposes the same as before with, of course, additions and elaborations, and should be well-known to all who are familiar with the first edition. It will suffice to say that the clear, lucid and eminently reliable style of the author has been maintained and there is but little tiresome, irrelevant verbiage to exhaust the interest of the reader.

Adverse criticism might well be advanced that the scope of endocrinology is too vast for the capacity of any single authority. It might be claimed that implications are not always adequately substantiated, experience and observation not invariably concordant with hypothesis, that endocrinology is too embryonic to warrant sweeping conclusions in many instances. This may be, and doubtless is, true, but the fact remains that conclusions from the wrong premises, may often be of as much service as conclusions from well authenticated premises, if for no other reason than the inspiration to thought, which they contribute. However much in error Wolf may occasionally be considered, it cannot honestly be denied that he has made an heroic attempt to gather, digest and correlate an enormous amount of data. In this sense, Wolf has contributed a real and enduring service to endocrinology, because he helps those who try to help others.

L. C. SCOTT, M. D.

*Peripheral Vascular Disease: Diagnosis and Treatment:* By William S. Collens, B. S., M. D., and Nathan D. Wilensky, M. D. Springfield, Ill., Charles C. Thomas, 1939. Pp. 244. Price \$4.50.

The monograph is a good resumé of peripheral vascular disease. The chapter on methods of examination is particularly well done and would be of value to anyone treating peripheral vascular lesions. Of particular value are the chapters dealing with the conservative treatment of peripheral vascular disease. A whole chapter, as might be expected, is devoted to intermittent venous occlusion therapy, which has been popularized by the authors. This is exceptionally well done and is a real contribution. Whereas the surgical methods of therapy are briefly discussed, it is to be regretted that a better evaluation of the various methods of surgical therapy are not given. Vein ligation, artery ligation, and arteriectomy are considered as completely as sympathetic ganglionectomy and ramisectomy without a complete evaluation of the various methods. A valuable part of the book is the complete bibliography which follows each chapter. Although the monograph deals almost exclusively with peripheral arterial disease, the final chapter of the book is on the treatment of varicose ulcers, and one has the impression that this was appended more or less as an afterthought. Without a more adequate dis-

ussion of the underlying varicosities this seems quite superfluous.

As a whole, the book is an excellent summary of peripheral arterial disease and, because of its compactness, would be of value to every practitioner of medicine.

ALTON OCHSNER, M. D.

*Manual of Urology:* By R. M. LeComte, M. D. Baltimore, The Williams & Wilkins Co., 1939. Pp. 295; illus. Price \$4.00.

Careful perusal of the preface to the first edition of this book will describe fully its content, which is ". . . briefly the fundamentals of urology in such a way that they can be easily grasped by the student approaching the subject." The author has diligently adhered to his expressed purpose.

The book is aptly entitled "A Manual Of Urology." It is essentially a handbook, and one splendidly adapted to the needs of the medical student during his clinical years.

IRVING J. GLASSBERG, M. D.

*Operative Orthopedics:* By Willis C. Campbell, M. D. St. Louis, C. V. Mosby Company, 1939. Pp. 1154; illus. Price \$12.00.

"Operative Orthopedics" is a carefully prepared and comprehensive survey of most of the operative procedures in general use in the practice of orthopedics. Coming from a man of Campbell's ripe experience, in the course of which each operation described has been employed many times and with known results, this volume is most welcome to orthopedic surgeons.

The work represents much more than a simple description of operative technics and approaches. Beginning with a fundamental chapter on the physiology and pathology of bones, joints and related structures and followed by a chapter on the apparatus in common use in the treatment and postoperative care of orthopedic conditions, the author then reviews the special surgical technic and approaches necessary for the performance of the many plastic and reconstructive procedures in common use. He follows with a number of chapters dealing with operative corrections generally recommended for orthopedic conditions in each region throughout the body. Each section is accompanied by a valuable bibliography. The illustrations are well planned and executed and give the reader a clear conception of the operative steps.

This book will be a valuable addition to the library of any one interested in traumatic or reconstructive surgery and is essential as a reference book for students and practitioners of orthopedic surgery.

GUY A. CALDWELL, M. D.

*Clinical Biochemistry:* By Abraham Cantarow, M. D., and Max Trumper, Ph. D. Philadelphia, W. B. Saunders Co., 1939. Pp. 666. Price \$6.00.

The second edition of this book contains 666 pages, and is supplied with bibliographies at the end of chapters, something that was intentionally omitted in the first edition.

New chapters or sections have been included, dealing with the influence of the anterior hypophysis, adrenal cortex and vitamin B<sub>1</sub> on carbohydrate metabolism; serum phosphatase activity; uremia; water balance, edema and dehydration; iodine metabolism; sodium and potassium metabolism; iron metabolism; magnesium metabolism; the chemistry of bile; and practical aspects of vitamin deficiencies.

The essential aim of the book is to present the fundamental principles of biochemistry as related to clinical medicine, and laboratory data are correlated with the clinical findings. There is a good index.

SIDNEY BLISS, Ph. D.

*Bacteria; the Smallest of Living Organisms:* By Dr. Ferdinand Cohn (1872). Baltimore, Johns Hopkins Press, 1939. Pp. 44. Price \$1.00.

Cohn's classic paper is still important today because, as the present editor remarks in his preface, he "like nobody before or after him has so brilliantly and clearly indicated the position of bacteria in the general economy of nature." The essay is not antiquated in essentials and is now as well worth reading as when first published in 1872. The foundation of the systematic bacteriology of today is partly Cohn's classification of plant microorganisms according to their form: cocci, bacteria, bacilli, vibrios, spirilla, and spirochetes. His experimental observations which led to his discovery of spores are among the most important in the field of plant physiology.

The science of bacteriology was two hundred years old when Koch published his classical work on anthrax, and Cohn's essay on the "Bacteria" is a masterly, even though brief, outline of the progress made from the day when Leeuwenhoek first saw his "little animals" up to 1872.

There is an interesting note concerning Charles S. Dolley who, while yet a medical student, published in 1881 a translation of Cohn's paper,—one of the earliest translations of foreign work in this country on the subject of bacteriology.

There is appended a bibliography of Cohn's papers indicating the amount of work he accomplished. This should be of interest to medical historians.

In the Journal of the American Medical Association (113:1815, 1939) is an interesting editorial concerning this little book and the influence of Cohn in the medical world.

J. F. RYAN, M. D.

*Principles of Hematology*: By Russell L. Haden, M. A., M. D. Philadelphia, Lea & Febiger, 1939. Pp. 348. Price \$4.50.

The reviewer can make no pretense to an authoritative discussion of a book concerning hematology. The approach is that of an internist who has long felt the necessity of a book devoted to the task of simplifying a subject that has grown very much involved. It is my opinion that in this the author has been eminently successful.

The first chapters of the book are concerned with a consideration of the hematopoietic system and blood formation. The accompanying illustrations are splendid and compel admiration for the author, for drawings that are at once original, graphic, clever and informative. In this small book the author has made no effort to describe the innumerable technics of hematologic examination. He has limited himself to procedures that he has found simple and satisfactory. These are presented in detail. The various hematologic indices are presented in a concise and clear manner. The original photomicrographs are excellent. An outstanding feature of the book is the 100 illustrative cases.

There are some omissions that seem important enough to be included as, for example, supravital staining. Many of the clinical descriptions are sketchy and scattered in parts throughout the book. Treatment is fully but concisely considered. The book is a most welcome addition to the literature of hematology and may be read with great profit by the practitioner.

I. L. ROBBINS, M. D.

*Physical Diagnosis*: By Richard C. Cabot, M. D., and F. Denette Adams, M. D. Baltimore, William Wood & Co., 1938. Pp. 846. Price \$5.00.

Although this is a twelfth edition, the radical changes in the viewpoint of the authors, the arrangement of the material and the numerous new illustrations virtually stamp it as a new book. At the outset it may be remarked that this new volume is still not the one to fulfil the fond expectation of the teacher in physical diagnosis. One wonders whether any single volume will ever achieve an all-embracing dissertation on the subject, even as one considers the desirability of an exhaustive treatise comprising several volumes. Nevertheless, this book is a step in the right direction. The opinion and experience of many authorities, as opposed to that of the single physician and teacher, is one of the outstanding features distinguishing this volume from its predecessors. The authors plainly indicate that they have made an effort to discuss the many modes of examination but have endeavored to present a system of history writing and examination of the body that will best serve the student in the determination of a diagnosis.

The first portion of the book is devoted to his-

tory writing and the examination of the body in whole and in parts. The latter half is devoted to the diagnosis of cardiovascular and respiratory diseases. The abdomen, the gastrointestinal tract, the genitals, and the examination of the joints and the nervous system are discussed. The attempt to touch upon everything necessarily makes for a fragmentary discussion and may be considered by some as one of the weaknesses of the text. Yet, if one will remember that the book may be considered as a guide indicating to the student the necessity of collateral reading, it will serve him to good purpose. One is impressed by the large number of x-ray photographs that find their place in a modern textbook on physical diagnosis. The pictures in the book are numerous, well chosen and plainly discernible. A very brief chapter on electrocardiography is included, in addition to several other subjects not mentioned.

The teacher may find that certain of the data presented do not meet with his approval, for example, as the classification and definition of rales. All things considered, one can safely state that this book is as good as any in this field and better than most. It can be recommended to the student as a book incorporating the best and most recent information in this important branch of medicine.

I. L. ROBBINS, M. D.

#### PUBLICATIONS RECEIVED

Council on Foods, American Medical Association: Accepted Foods and Their Nutritional Significance.

Davis-Lisson Limited, Canada: Population, Race and Eugenics by Morris Siegel, M. D.

The Johns Hopkins Press, Baltimore: The Flowering of an Idea by Alan M. Chesney.

Lea & Febiger, Philadelphia: Human Helminthology by Ernest Carroll Faust, A. B., M. A., Ph.D.

J. B. Lippincott Company, Philadelphia: The New International Clinics, Volume IV., New Series Two, 1939.

W. B. Saunders Company, Philadelphia: The Anatomy of the Nervous System, by Stephen Walter Ranson, M. D., Ph.D.

Charles C. Thomas, Springfield: The Diagnosis and Treatment of Diseases of the Esophagus by Porter P. Vinson, B. S., M. A., M. D., D. Sc., F. A. C. P. Proctoscopic Examination and Diagnosis and Treatment of Diarrheas by M. H. Streicher, M. S., M. D. Electrocardiographic Patterns by Arlie R. Barnes, M. D. Endocrine Gynecology by E. C. Hamblen, B. S., M. D., F. A. C. S.

The Williams & Wilkins Company, Baltimore: The Surgery of Injury and Plastic Repair by Samuel Fomon, Ph. D., M. D.

# New Orleans Medical

and

# Surgical Journal

Vol. 92

FEBRUARY, 1940

No. 8

## IN MEMORIAM\*

WALDEMAR R. METZ, M. D.

NEW ORLEANS

We have gathered here tonight, as is our annual custom, to commemorate the name and to honor the memory of Dr. Stanford E. Chaillé. It is likewise the occasion when the Society pays tribute to those of our number whose labors in the service of medicine have been stilled and who have been called to a higher reward.

STANFORD E. CHAILLÉ

The Stanford E. Chaillé Memorial Meeting was inaugurated in 1926 to perpetuate the influence of this great man in the development of medical education in the South.

He was Dean of the Medical Department of Tulane University from 1885 until 1908. But he was indeed much more than Dean. He also held, with rare distinction, the Chairs of Physiology, of Hygiene and of Anatomy—to all of these he brought the same thoroughness and forcefulness that characterized everything he did. He was one of the founders of this Society as he was also of the Louisiana State Medical Society. His zeal, his enthusiasm, his executive talent and his untiring activity in the interest of the profession and the public weal were such as to entitle him to be referred to as the father of organized medicine in this city and state. Hygiene and public health were ever close to his heart and he worked indefatigably, in the face of

much opposition and many obstacles, to have them recognized by State Legislation.

Dr. Chaillé was a gentleman of the old school. A Southerner by birth and by inclination, his sympathies were unalterably with the cause of the Confederacy and he gave the best of his unusual talent to the army of the South during the Civil War.

He was a splendid executive, a teacher who inspired and impressed his students with the clarity of his mind and by his practical application of the subjects which he taught and in which he had so wholehearted an interest.

He was keenly sensitive to the responsibilities of citizenship, a man of unswerving ideals whose honesty of purpose and sincerity of method was never challenged. He disliked ostentation. Unaffected and free from jealousies, he carried gracefully, and with an unusual lack of pretense, his elevated position and the many honors bestowed upon him.

My own personal acquaintance with Dr. Chaillé dated to an early childhood. My honored and late lamented father, Dr. A. L. Metz, for thirty-two years Professor of Chemistry, Toxicology and Medical Jurisprudence, whose loyal and faithful friendship and admiration for Dean Chaillé continued uninterruptedly until the latter's death, held him up to me in my youth as an example of wisdom, as a symbol of extraordinary ability and as a born leader of men. I remember clearly that he would refer to the Dean as "a great man who stands head and shoulders above his confrères." It was my duty each Saturday morning to wash bottles and assist in the preparation

\*Read before the Orleans Parish Medical Society, December 5, 1939.

of reagents for the approaching teaching week at my father's laboratories in the old Medical School situated on Canal and Villere streets. Afterwards, I was invariably instructed to pay my compliments to Dr. Chaillé whose offices were on the opposite side of the building. And every week I "quaked in my boots" when I approached the Dean's office. He always seemed quite glad to see me and received me courteously and, I may also add, briefly, but nevertheless he kept me ill at ease. He would ask some commonplace question in that direct sharp manner of his, which oftentimes bordered on abruptness and I would promptly lose the power of speech. I recall him as small of stature, a large head on slender shoulders, bright piercing eyes under bushy eyebrows and a flowing white mustache above a firm chin. His carriage was that of easy dignity and his resolute figure was a familiar one on Canal Street where he walked daily to and from the Medical School to his home on Rampart Street.

These are boyhood recollections to be sure but are nevertheless still vivid and enduring, for the impressionable stage of youth carries with it a tenacious memory. His was a personality that indelibly stamped itself on all who came into his presence or within the range of his voice.

A speaker can do little for the perpetuation of the glory of extraordinary souls—"Their deeds alone can praise them." No other eulogy is of any effect where worthy names are concerned and it needs but the simple story of work and actions, faithfully performed, to create and sustain our regard and our respect for them. With the death of Stanford E. Chaillé organized medicine lost a courageous and staunch supporter, Tulane University a Dean and an executive who did a yeoman's service in the cause of medical education, the student body a splendid and effective teacher and the city and state a citizen who battled consistently for the rights of others.

In troubled times like these the medical profession could well use to its everlasting

benefit the leadership of a Stanford E. Chaillé.

TO OUR RECENTLY DECEASED MEMBERS

Once again the dark spectre of death has cast the black cloak of mourning over the membership of this Society. This past year has witnessed the passing of seven of our fellow physicians; some have been cut down in the very prime of their professional life and usefulness, others in the evening of their long and serviceable careers. All carried to their end the finest traditions of the sons of Aesculapius. They blended the splendid assets of servers and leaders. They have left behind them a heritage of duty and of work well done. With rare exception, they were imbued with the knowledge that personal sacrifice and abrogation is a part of a doctor's daily life—never too proud to perform the most menial duty, brave enough and wise enough to serve with wisdom and to lead with valor. They lived their lives and practiced their art according to their individual lights. We miss their counsel and their friendships; we sympathize with their loved ones who are deprived of their companionship and guidance and as a Society we salute their memory and register our sorrow.

With bowed head we herewith regretfully record the names of:

- Dr. George S. Bel
- Dr. Maurice Joseph Gelpi (Honorary)
- Dr. Julius Emanuel Isaacson
- Dr. Abraham Louis Metz (Honorary)
- Dr. William Henry Robin
- Dr. Jacob Ambrose Storck (Honorary)
- Dr. Arthur Weber

And again with the poet we say:

"Their life was gentle, and the elements so mixed in them  
That nature might well stand up and say  
to all the world,  
They were men!"

## HEPATITIS

ITS ETIOLOGY, DIAGNOSIS, AND  
TREATMENT\*

SIDNEY A. PORTIS, M. D.†

CHICAGO, ILL.

The liver is one of the most important organs relative to the normal functions of the gastrointestinal tract. Hepatic disorders inevitably affect the digestive system. It is only in recent years that it has been given its proper place as a factor in many evident and obscure gastrointestinal complaints. A great deal of valuable experimental work has been done on the pathologic physiology of the liver, indicating the tremendous reserve function of the organ and its capacity for regeneration and repair.

## ETIOLOGY

Inflammatory conditions of the liver are described under the gross term of "hepatitis" in contradistinction to the more or less benign enlargements on a non-inflammatory basis to which the term "hepatoses" is applied. Hepatitis may be part of a systemic disease, as seen in acute infectious and communicable diseases, syphilis, tuberculosis, and parasitic diseases, or it may be due to local disease of the extrahepatic biliary system, particularly cholecystitis and its associated changes. It may result from the absorption of toxic and obnoxious substances from the gastrointestinal tract. It may result from such hepatotoxic chemicals as hydrazine, phosphorus, chloroform, neoarsphenamine and other arsenicals, carbon tetrachloride, cinchophen, and as more recently reported even sulfanilamide. Parenthetically, it may be added here that the widespread use of arsenicals for parasitocidal food purposes has given rise to an increase in the incidence of arsenical hepatitis. The hepatoses, on the other hand, are due more or less to the enlargement of the

liver on a non-inflammatory basis, such as fatty infiltration of the liver, marked passive hyperemia of the liver, and even an enlargement of the liver associated with blood dyscrasias. The changes which go on in the liver from any of these etiologic factors are dependent on the causative factor, and as a rule destructive and degenerative processes of the liver parenchyma follow. Simple atrophy, fatty metamorphosis, and focal necrosis, either confined to the region of the central vein of the lobule or affecting the entire structure, apparently represent the fundamental lesions associated with all types of hepatic injury. Acute atrophy of the parenchyma may be associated with acute obstruction of the common bile duct following the removal of the gallbladder, may be part of a thyrotoxic crisis, or may result from the clinical use of certain hepatotoxic drugs.

Chronic hepatitis may develop from frequent superimposed acute attacks to the extent that even a true cirrhosis may become evident. It is a well-known fact that in the presence of chronic obstruction of the outflow of bile, while regeneration goes on, the degenerative processes are so great that evidence of regeneration is entirely in the background. Furthermore, regeneration may be retarded unless the hepatotoxic factor is removed. Frequently the lipid substances of the blood may decrease to low levels and the cholesterol-esters may virtually disappear. The excretory functions, particularly in respect to dyes and bilirubin, are always impaired but as a rule not to the degree of liver damage.

## PATHOLOGIC PHYSIOLOGY

The disturbance in carbohydrate metabolism as manifested by hyperglycemia or hypoglycemia is the outstanding and most constant result of severe injury to the liver. The liver has, at least, three separate functions directly concerned with the metabolism of dextrose: (1) glycogenesis; (2) glycogenolysis; (3) the production of dextrose and the deposition of glycogen from non-carbohydrate precursors (glycogenic amino acids and glycerol fractions of fats). The balance between glycogenesis and

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

†From the Department of Medicine, Rush Medical College of the University of Chicago.

glycogenolysis allows the liver to function as a storehouse of readily available dextrose to be delivered into the blood stream in times of need. If, for instance, the glycogenesis alone was impaired, the hypoglycemia noted during fasting could be due to insufficient storage of glycogen in the liver, even though the glycogenolytic function was normal. On the other hand, the impaired conversion of glycogen to dextrose could account for the hypoglycemia without involving the glycogenic mechanism. This would result in the retention of an abnormally large amount of glycogen in the liver. Von Gierke's disease illustrates a type of hepatogenic hypoglycemia, the mechanism of which appears to be wholly on the basis of the disturbed glycogenolysis. In this disease, the liver is found to have a great excess of glycogen, indicating no disability in its deposition. Therefore, chronic hypoglycemia may be due to a deficient glycogenolytic mechanism.

Further, it has been shown that in the liver damage caused by arsphenamine poisoning in dogs, there is an associated fall in the concentration of chlorides of the plasma, the development of acidosis, and an increased content of lactic acid in the blood, along with a consistent hemoconcentration. The metabolism of chlorides, in this particular condition, is not clearly understood. The later elevation of concentration of urea and non-protein nitrogen may depend upon renal failure, associated with the hepatic insufficiency.

In cases of certain poisonings, anoxemia may be a factor resulting from hepatic injury. According to Snell and Keys,<sup>1</sup> it appears to depend upon a decrease in affinity of hemoglobin for oxygen as shown by displacement of the oxygen dissociation curve to the right, and finally they state that whether this can be attributed to some fundamental peculiarity of hemoglobin or to the admixture of other substances in the blood interfering with normal respirations as yet is undetermined.

Hemorrhage associated with the disease of the liver may result from the rupture of the collateral circulatory channels, or it

may be dependent on some intrinsic change in the coagulating properties of the blood. Hemorrhages resulting from the former condition are well known in clinical medicine, but it is only recently that Quick and his associates<sup>2</sup> have clarified the question of the intrinsic change in the blood *per se*. He was the first to note that the deficiency was probably that of the prothrombin of the blood, all other elements necessary for the coagulation being present in normal amounts. This has been corroborated by other investigators.

Hawkins and Brinkhous<sup>3</sup> have noted, in studying the hemorrhagic states induced in dogs by complete biliary fistula, that a deficiency of prothrombin was present and could be corrected by the feeding of bile. This would seem to indicate that one of the factors necessary for the maintenance of the normal level of prothrombin is the presence of bile in the bowel. The bile is necessary for the proper assimilation of an additional factor, the so-called vitamin K (coagulation vitamin), which has been shown experimentally to be found in the unsaponifiable non-sterol fraction of hog liver and in alfalfa. Thus, these two factors, the presence of bile in the bowel and the hypothetical fat soluble vitamin, are of importance in maintaining the normal level of prothrombin. In addition, changes in the liver itself may produce a difference in the prothrombin concentration and its manufacture. This latter factor may be associated with toxic changes in the liver. It was formerly thought that the coagulation of blood in liver disease was associated with a disturbance of calcium metabolism, but more recent clinical and experimental evidence has shown this not to be a fact.

#### SYMPTOMS

The symptoms of liver disease are variable, and again are intradependent on the etiologic factors. Either the disturbance of bilirubin metabolism may manifest itself in the clinical findings of jaundice or there may be just an increase of serum bilirubin without any staining of the tissues. This latter form of jaundice is called latent jaundice, and it is only demonstrable by colori-



metric tests on blood serum. One of the most important excretory functions of the liver is the elimination of bile. The liver manufactures bilirubin in its reticulo-endothelial system and it also secretes bile pigment through the polygonal cells of the liver into the bile capillaries. Therefore, it is evident that any changes in the bilirubin content of the blood stream would be significant of liver damage except in cases of hemolytic jaundice. It is to be remembered that unless the concentration of serum bilirubin is 1:100,000 or more then none of the tissues apparently become stained, and it is not until the concentration is approximately 1:50,000 that bilirubin appears in the urine, so that liver damage must be sufficiently great before clinical evidence of jaundice is present. Frequently associated with this, except in dissociated jaundice, namely that of the hemolytic type, is also a disturbance of bile salt metabolism. However, in cases of prolonged obstruction the liver ceases to manufacture bile salts. Today, we measure the degree of bilirubinemia by the icterus index and the qualitative and quantitative van den Bergh test, with which I am sure you are all acquainted and there is no need to enter into a discussion of them at the present time.

The next important feature of liver disease, which has been alluded to previously, is the disturbance of carbohydrate metabolism. Early or mild liver disease usually manifests itself by hyperglycemia. Late or severe liver disease results in hypoglycemia. Hypoglycemia may be responsible for simple fatigue, with weakness. When marked the reaction may be comparable to that to an overdosage of insulin, in which the patient shows evidence of hypoglycemic shock. I have seen patients with the appearance of an acute surgical abdomen in hypoglycemic shock similar to that sometimes seen in patients with diabetic acidosis. The patients are dull, apathetic, complain of nausea, headache, vertigo, and may even have vomiting and occasional episodes of diarrhea, particularly when there is an associated pancreatitis with a coexisting disturbance of the fat digestion. Fever may not be an uncommon symptom, and a low

grade fever over a period of time frequently has been noted in liver disease when all other causes have been excluded. Acute crises of abdominal pain, other than that due to hypoglycemic shock, are not at all uncommon in the clinical picture of hepatitis.

One frequently may make the mistake, in patients who suffer from acute atrophy of the liver due to poisoning, with a very marked jaundice, and acute exacerbations of pain, that the patient has an obstructive type of jaundice. However, it is to be remembered that the pain in these cases is not due to the obstruction of the biliary passages but is due to the fact that the liver capsule is stretched in the process of rapid regeneration of the liver, and this stretching of the liver capsule accounts for the acute pain, the same as it would account for the pain which occurs in acute right ventricular heart failure with extreme passive congestion of the liver and a consequent stretching the liver capsule. Anyone who is conversant with the necropsy findings in these cases can well correlate the clinical picture with the changes found in the liver. Inflammation of the liver may be present and tenderness may be a constant finding, even in the absence of gallbladder pathology. However, when the liver becomes smaller in size, tenderness and pain, as a rule, are not frequent findings. The blood may show evidence of a secondary anemia of the hyper- or hypochromic type, depending upon the pathology of the liver. Leukocytosis in acute infections is common. However, in overwhelming disturbances of the liver, leukopenia may be seen.

#### CHOLEMIA

One of the most serious manifestations of parenchymatous injury of the liver is hepatic insufficiency. Like the uremic state it is not very well understood. It does not closely simulate the syndrome produced by hepatectomy in animals. However, there are disturbances of carbohydrate metabolism that may be severe. In this condition, the patients, as a rule, become exceedingly anxious about themselves and are apprehensive, the pulse becomes very rapid, they may break out in a cold perspiration, slight

cyanosis may be evident about the face, and later convulsive seizures may not be uncommon. The temperature, as a rule, becomes subnormal and when the process is severe enough, in spite of the therapeutic approach, they usually die.

The clinical syndrome often suggests acute intoxication and probably represents the failure of normal processes of detoxification of the liver. Since the liver is the first line of defense against endogenous and exogenous toxins, then when this function fails, the load may fall on the kidney with resulting renal insufficiency. Experimentally there has also been shown a consistent hemoconcentration in animals. In humans, while it never reaches this severe degree, there is some concentration of the blood and hypochloremia may occur. Elevation of the concentration of the urea of the blood and hypochloremia may occur. Elevation of the concentration of the urea of the blood and non-protein nitrogen may be associated with a coexistent renal failure. Acidosis, as manifested by low carbon dioxide combining power and the changes in the pH of serum, has been observed. The anoxemia, as stated above, manifesting itself in the clinical cyanosis, may be dependent upon a decrease in affinity of hemoglobin for oxygen in liver disease. Finally, chronic atrophy or cirrhosis may develop on the basis of repeated episodes of acute injury to the liver, and when these changes do take place the associated findings of either hypertrophic biliary or atrophic cirrhoses may become evident, and the clinical picture of this condition need not be repeated at this time.

#### DIAGNOSIS

In the diagnosis of hepatitis the causative factors form a very important part. However, very frequently the etiologic considerations may not only be not evident but entirely in the background and one is dependent upon the clinical manifestations and the subsequent laboratory findings to clarify the clinical picture. As has been mentioned before, disturbances in bilirubin metabolism may be an important feature of this disease. The evaluation of the de-

gree of bilirubinemia is well known to you. Associated with this disturbance in bilirubin is also the estimation of the amount of urobilinogen secreted in the urine. Urobilinogen is formed from the action of bacteria on bilirubin in the small intestine. It is then resorbed into the blood stream and excreted in the urine. In cases of complete biliary obstruction, urobilinogen is usually absent from the urine, and it also may be absent during the height of an attack of so-called catarrhal jaundice, but may be present during the beginning and end of an attack.

Urobilinogen in the urine, according to Piersol and Rothman,<sup>4</sup> is probably the most delicate sign of liver dysfunction. It is always increased, even when the injury to the parenchyma is slight, or when excessive blood destruction brings about an increased bile pigment formation. From the experience of these authors, urobilinogen is constantly increased to a noteworthy degree in portal cirrhosis, and there was a slight increase in urobilinogen noted from time to time in a limited number of patients in whom liver disorder was suspected but not evident clinically. In many conditions, a persistent increase of urobilinogen was indicative of a residual hepatitis.

#### TESTS OF LIVER FUNCTION

Numerous functional tests have been devised for the evaluation of disturbances of liver function. However, no one functional test, at the present time, is of absolute diagnostic value and all of them are of a contributory nature. Too much reliance is placed upon the significance of any one individual test, and in this one field clinical judgment based on long clinical experience assumes a major role. For the sake of brevity, it might be mentioned that the more frequent tests are: First, the *galactose tolerance test*, which is based upon the assumption that the liver alone changes galactose to glycogen; any impairment of this function of the liver causes galactose to appear in the urine whether it be given by the oral or intravenous method. A total output of galactose exceeding 3 grams constitutes a positive test. Errors that might accrue

from this test are probably due to the malabsorption of galactose caused by gastric stasis, delay in absorption secondary to passive hyperemia of the gastrointestinal tract present in certain types of chronic hepatic disease, faulty excretion of sugar due to renal and vesical factors, oliguria caused by dehydration, or acute renal injury associated with primary hepatic lesions, functional retention of urine in the bladder and the residual urine of an hypertrophied prostate gland. There are other sugar tests but the galactose is the most commonly used.

Second: *The hippuric acid test.* One of the main functions of the liver is its detoxicating action. In order to study this phase of liver dysfunction, the synthesis of hippuric acid was studied after the ingestion of sodium benzoate. Normally the excretion of hippuric acid averages about 700 mg. per day. This is increased by the ingestion of benzoate or the precursor of benzoic acid which occurs in plums and cranberries. Quick and his associates,<sup>2</sup> utilizing this evidence, devised a test in which 5.9 grams of sodium benzoate in 30 c.c. of water were given one hour after a breakfast of coffee and toast. This was followed by one-half glass of water. The patient voids and then urinates every hour for four hours. The specimens are acidified to Congo red with hydrochloric acid. The precipitation of hippuric acid is collected on a filter paper, dried, and weighed. The total hippuric acid eliminated by the liver, with some reserve, is from 3 to 3.6 grams. It has been found that the rate of synthesis of hippuric acid is well correlated with the degree of hepatic injury, the general clinical picture of the patient, and the degree of bilirubinemia. However, it is to be mentioned that a negative hippuric acid test does not exclude entirely a critically damaged liver. When the excretion of hippuric acid is 1.5 grams or less a severely damaged liver is usually present. It should be parenthetically expressed here that any surgical procedure, unless there is immediate need for surgical interference, should be delayed until there is a near normal excretion of hippuric acid.

In cases of intrahepatic jaundice, particu-

larly those caused by cinchophen, the hippuric acid test gives results that correlate to a high degree with those of the galactose test and the value for serum bilirubin. More recently, this test has been modified for intravenous use and here 1.77 grams of sodium benzoate are dissolved in 20 c. c. of distilled water and given intravenously. A specimen of urine should be collected before the test begins and then again one hour after the end of the injection. Approximately five minutes should be required for the injection. During the first hour in normal healthy adults, 0.7 to 0.95 gram of hippuric acid is excreted.

Third: *The Takata-Ara test* has been used by some in the diagnosis of cirrhosis. However, the clinical manifestations of the disease are so apparent that the test is of little value.

Fourth: *The cholesterol and cholesterol-ester fraction.* The liver is presumed to be a factor in cholesterol metabolism. The esterification of cholesterol goes on in the liver. Normally the blood cholesterol is between 150-230 mg. per 100 c. c. As a rule, the cholesterol-ester fraction is 50 to 70 per cent of the total cholesterol. In patients with liver damage, frequently the cholesterol-ester fraction is reduced in proportion to the extent of liver damage. Since this is a physiologic function of the liver it assumes a major importance as a test for liver function and may be of definite prognostic value before and after surgical interference for gallbladder disease, and in certain types of liver damage. When the cholesterol-ester fraction is below 50 per cent it is definitely indicative of liver damage, and as the liver adequately repairs itself the esters also rise in corresponding proportions.

Fifth: *The albumin-globulin ratio.* Observations on the changes in serum albumin and globulin in hepatic disease have been recognized for many years. There is some difference of opinion as to the clinical significance of these changes. However, recent studies on patients with cirrhosis of the liver have shown that the total plasma protein value was decreased and particularly the albumin fraction. In my experience, I have found in cirrhosis of the liver and

other hepatic diseases that the albumin-globulin ratio approaches a value of 1:1. However, this is not evident as a rule without corresponding clinical manifestations of liver disease. Furthermore, other evidence obtained from liver functional tests usually paralleled this observation on the change in the albumin-globulin ratio. It is necessary, however, to rule out other causes of disturbance in the albumin-globulin ratio, particularly in cases of nephrosis, severe alkalosis, and even in some cases of marked hypothyroidism. Most investigators feel that decreased levels of serum protein in instances of hepatic injury probably result from the failure of protein or protein building substances of the liver, in addition to the alteration in the equilibrium between the circulating and stored protein. In patients with ascites it may be the loss of albumin in the ascitic fluid or the increased capillary permeability allowing the escape of protein into the tissues that is the primary factor in the reduction of the amount of albumin in the serum.

Sixth: *Bromsulfalein*. Of all the dye tests for the excretory function of the liver, probably the most commonly used is that of bromsulfalein. As a rule 5 mg. of bromsulfalein per kilogram of body weight are injected, and a single specimen of blood is taken at the end of one hour. The amount of dye present in the serum is determined by the transverse comparison of the serum with standard tubes in a colorimeter. According to Magath,<sup>5</sup> retention of the dye occurred in 96 per cent of the patients in whom there was evidence of parenchymal hepatic injury or even moderate mechanical obstruction of the bile ducts which had not yet produced clinically demonstrable jaundice. Low grade retention of the dye (less than 12 per cent but more than 4 per cent) is significant, since low grade retention occurs very rarely without evidence of hepatic disease. Israel and Reinhold<sup>6</sup> feel, from their observations, that bromsulfalein is one of the most sensitive and accurate tests that they have studied and might be the only test that would frequently reveal hepatic disease.

Seventh: *Sodium tetraiodophenolphtha-*

*lein*, which is based upon the Rosenthal Rowntree test for the secretion of phenoltetrachlorophthalein, makes it possible to do a combined liver functional and gallbladder functional test on the same patient. Intravenous injection of a solution of 2 1/2 grams of this salt is usually given and samples of blood taken one-half and one hour after injection. Normally patients excrete all but 15 per cent of the dye at the end of 30 minutes and all but 5 per cent at the end of 60 minutes. Graham and his co-workers<sup>7</sup> maintain that the retention of 12 per cent at the end of one hour may be a contraindication for surgical intervention and indicative of definite liver damage.

Eighth: *The Rose Bengal test*, similar to other dye tests, depends upon the ability of the liver to remove the dye from the blood within a certain period of time. This test gives results comparable to those obtained with bromsulfalein. The difficulties, however, rise from the fact that a satisfactory standard is hard to obtain.

Ninth: More recent studies on the *bilirubin clearance test* (the rate of disappearance of injected bilirubin from the blood) show it to be a very sensitive test for liver function, and evidence is accumulating to bear this out.

It is reasonable to conclude, from the above named tests, that the nearer the test approaches the physiologic function of the liver the more clinically significant it should be. There are numerous other tests of liver function, but they are not important enough to discuss at this time.

#### TREATMENT

The fact that there is liver damage having been established, the removal of the etiologic factor assumes a major role whenever it can be found. For instance, in cases of poisoning it is self-evident. For repeated damage of the liver from associated gallbladder disease cholecystectomy should be done during a quiescent period, or at least a cholecystostomy as a temporary measure before later cholecystectomy.

As it has been stated before, the glyco-genic function of the liver is one of its most important functions. It is also known that

a liver rich in glycogen is much more resistant to damaging agents than a liver which is poor in glycogen. It is therefore important to increase the liver glycogen. It is to be remembered that in cases of liver damage it takes a higher concentration of glucose in the blood stream to enable the damaged liver cells to store adequate amounts of glycogen. In other words, the amount of glucose absorbed from the gastrointestinal tract, even under the influence of a high carbohydrate intake, may not result in a high enough blood sugar level to allow the liver cell to take it out and metabolize it into glycogen. It is evident from this that high carbohydrate diets in cases of severe hepatic damage should be supplemented by the parenteral administration of sugar.

For these reasons and others, it has been found that if glucose is given intravenously in hypertonic solutions it reaches the liver in a much higher concentration and the liver is therefore able to take it out and manufacture it into glycogen. This, in turn, helps materially to repair liver damage. Particularly is this true in cases of hepatic insufficiency, and it has been shown by Jones<sup>8</sup> in those individuals who have received glucose intravenously for ten days or longer that the mortality rate was lowered 22 per cent. In view of the fact that hepatic insufficiency has been regarded as almost invariably fatal, these results are encouraging. Some clinicians have used insulin with this intravenous sugar administration with the thought that they might more rapidly metabolize the sugar. However, investigations have shown that not only is this not true but it may actually decrease the amount of glycogen deposited in the liver. Therefore, unless there is a diabetic condition present, insulin should not be given along with hypertonic glucose solutions in the treatment for hepatic damage. When glucose is given intravenously it is not necessary to give it in normal saline unless there is evident lowered chloride in the blood stream. Furthermore, the introduction of solutions in the blood stream will help correct the hemoconcentration, which occurs in hepatic diseases. After liver repair has

taken place high carbohydrate intake by mouth can be kept up, and the liver will then be able to utilize the glucose absorbed from the gastrointestinal tract even though it is in lesser concentration.

In patients with atrophic cirrhosis of the liver, with marked ascites, the repeated intravenous injection of 50 grams of 50 per cent glucose daily has produced a very marked improvement in their clinical picture. The glucose not only repairs the damaged liver, but it also acts as a diuretic, and in many of these patients paracentesis is unnecessary. I have seen patients who have been in a hopeless condition return to their normal existence after this method of approach. It is important, of course, during this time to continue to keep up a high carbohydrate intake, and to abstain from the use of alcohol or any other substance which may predispose to liver damage. By this method an improvement in the liver takes place.

The second factor concerned is the decrease of the portal venous pressure. This may be brought about by the Talma-Morison omentopexy. However, the results of this have not been generally gratifying. Others have produced a partial enterectomy which may serve the purpose of reduction of the portal venous flow on one hand and the area of serous surface through which transudation may occur on the other hand.

Thirdly: Since the colloid osmotic pressure is reduced in patients who have cirrhosis because of the hypoproteinemia and the reversed albumin-globulin ratio, attempts to elevate the concentration of protein in the plasma are an important feature in the therapy of this disease. This may be accomplished by re-injecting the ascitic fluid into the blood stream, or by producing a permanent drainage of the ascitic fluid in the proximal end of the saphenous vein. These two procedures, of course, should be used only as a last resort.

Further, in addition to the high carbohydrate diet, a high protein intake is desirable. However, since one is giving glucose intravenously the amount of carbohydrate in the diet can be proportionately reduced while the protein, on the other hand, is in-

creased. Transfusions of blood and plasma have been beneficial in increasing the protein content. More recently, concentrated solutions of acacia, which raise the osmotic pressure of the serum, have produced diuresis in some patients who have a hypoproteinemia. An injection of 500 c. c. of a solution of 6 per cent acacia on three consecutive days frequently will produce a temporary rise in the osmotic pressure of approximately 20 per cent, and a change sufficiently great to retard the accumulation of fluid. Too large doses should not be used at any one time because they may produce hepatic damage and therefore depress the total protein still further.

Field<sup>9</sup> has shown that the giving of large doses of vitamin B complex parenterally may elevate the concentration of proteins of the plasma and retard transudation even when such a rise in concentration is not large. Others have recommended the use of all types of vitamins in this disease, parenterally and orally. Increasing clinical experience indicates that vitamins, especially vitamin B<sub>1</sub> and vitamin B complex, are beneficial in treatment of diseases of the liver. In this connection it is to be remembered that liver extracts contain vitamin B<sub>1</sub> in considerable quantities.

I have found that the use of intramuscular injections of liver extract may be beneficial and produce changes in the nitrogen balance and in the retention of protein. Other attempts have been made to change the nitrogen balance, and experimental evidence is accumulating to show that mixtures of amino acids intravenously may help to solve the problem of hypoproteinemia.

The time-honored methods of treating ascites and edema associated with this disease, of course, should be used, but in moderation. It is not necessary today in the light of our newer knowledge of the therapy of liver disease to dehydrate a patient with mercurial salts and brisk catharsis as was formerly done. Attempts should be made to correct the liver damage and change the colloid osmotic pressure in the blood rather than to continue to insult the patient with repeated injections of diuretics and cathartics. Occasionally one may produce fatal

hepatic insufficiency through the overdosage of these drugs. Paracentesis may have to be used, depending upon the clinical picture of the patient.

#### OTHER THERAPEUTIC PROCEDURES

In patients with low grade hepatitis, in addition to the above outlined therapy, I have found it of value at times to use empirically potassium iodide in doses of 10 to 15 grains, three times a day. It seems that the potassium iodide in these cases, as in syphilis, has some beneficial effect on liver damage. If, for instance, a patient with a very definite bilirubinemia in whom high carbohydrate diet, intravenous administration of glucose, and potassium iodide by mouth do not show a diminution in the serum bilirubin, then the prognosis is not so good, and one may have to resort to surgical intervention, particularly in gallbladder disease, because of the danger of more severe damage of the liver taking place.

In cases of hepatitis associated with poisonings, the time-honored methods are still pre-eminent. However, in cases of heavy metal poisoning the intravenous injection of sodium thiosulphate may be of distinct benefit in addition to the other therapy.

The treatment outlined by older clinicians of mild cholagogues in the way of saline cathartics, such as citrate of magnesia, effervescent sodium phosphate, or even magnesium sulphate, have their place. The use of duodenal drainage as a therapeutic agent in this disease, to my mind, is of no particular value. In the first place, one can accomplish the same results without the use of a tube. Secondly, the withdrawal of large amounts of bile from the system may be harmful. Thirdly, since bile is necessary for the absorption of vitamins from the gastrointestinal tract, its withdrawal may deplete the vitamin storage in the body. Furthermore, I have seen an increased tendency to hemorrhage in cases of liver disease following persistent transduodenal drainage, the same as may occur in patients with biliary fistula. With those who care to use duodenal drainage as a diagnostic

procedure I have no quarrel, but as a therapeutic agent I see no value.

Bile salts administered to patients with viosterol (vitamin D) insure its absorption, the same as vitamin A is absorbed when bile salts are present in the intestine. The use of bile salts and bile acids in increasing the volume output of the liver is of value in the treatment of patients with hepatitis, and particularly in patients who have no obstruction to the outflow of bile, in whom it will increase the amount of bile secretion into the intestine. Bile salts aid in the digestion and absorption, and they act on the liver to increase the output of bile. Pure bile, under normal conditions, does not increase the output of pigment but it may do so in the presence of hyperbilirubinemia. Pure bile salt, given orally or intravenously, increases the total output of cholesterol in bile. Bile salts stimulate the formation of bile and act as a source of laxative for the biliary passages. Bile salts keep the fatty acids in aqueous solution, and this acid reaction in the gallbladder bile prevents the precipitation of cholesterol and fatty acids in the gallbladder, and there is considerable evidence in the Japanese literature that bile salts improve the glycogenesis in the liver. Therefore, in the treatment of hepatitis, it is advisable to use bile salts and even bile acids in order to increase liver function.

#### TREATMENT OF HEMORRHAGE

In the treatment of hemorrhage in this disease it is important to remember, as has been stated before, that an attempt should be made to elevate the prothrombin content of the blood. This may be done by the administration of extracts containing vitamin K together with bile or bile salts to patients who have jaundice, or one may administer bile alone to an individual who is ingesting an adequate diet. However, the administration of vitamin K alone without bile in patients who have obstructive hepatic jaundice is of no particular value. Blood transfusion is only a temporary relief, and does not produce any reduction in the prothrombin time in the blood. It is important again to re-emphasize the combined use of vita-

min K and bile, which may be introduced by a duodenal tube in these patients, to reduce the prothrombin time and prevent and control active bleeding.

Finally, one should not become unduly alarmed by the presence of jaundice. Icterus indexes of 30, 40, 50, or 60 are not alarming. I have seen patients with icterus indices of over 200 get well without any surgical intervention. The clinician is too anxious, at times, in the presence of an increased bilirubinemia, to recommend surgical intervention. However, I would like to impress upon you the need for conservative, sound clinical judgment in handling diseases of the liver, remembering that the liver is one of the most important organs in the digestive system.

#### SUMMARY

Thus, today we are no longer in the dark in the management of liver disease. The laboratory and scientific approach have put us in a position, as never before, to understand this problem. Our new knowledge of therapeutic approach and our ability to estimate what is going on in patients at all times have taken many a patient from a hopelessly invalidated existence to one of a near normal and more optimistic outlook on life.

#### REFERENCES

1. Snell, A. M., and Keys, A.: Respiratory properties of the arterial blood in normal man and in patients with disease of the liver: Position of the oxygen dissociation curve, *J. Clin. Invest.*, 17:59, 1938.
2. Quick, A. J., Ottenstein, H. N., and Weltchek, H.: Synthesis of hippuric acid in man following intravenous injection of sodium benzoate, *Proc. Soc. Exper. Biol. & Med.*, 38:77, 1938.
3. Hawkins, W. B., and Brinkhous, K. M.: Prothrombin deficiency: The cause of bleeding in bile fistula dogs, *J. Exper. Med.*, 63:795, 1936.
4. Piersol, G. M., and Rothman, M. M.: Practical value of liver function tests, *J. A. M. A.*, 91:1768, 1928.
5. Magath, T. B., and Snell, A. M.: The use and interpretation of tests for liver function, *J. A. M. A.*, 110:167, 1938.
6. Israel, H. L., and Reinhold, J. G.: Detection of cirrhosis and other diseases of the liver by laboratory tests, *J. Lab. & Clin. Med.*, 23:588, 1938.
7. Graham, Everts A. et al.: Diseases of the Gall Bladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928.
8. Jones, C. M.: The treatment of acute hepatic insufficiency and its relation to prognosis, *Am. J. Digest. Dis. & Nutrition*, 3:624, 1936.
9. Field, H.: The relation of vitamin B to serum proteins and to edema, *J. Clin. Invest.*, 16:663, 1937.

#### DISCUSSION

Dr. D. N. Silverman (New Orleans): I want to add a few words in regard to the clinical aspect.

of hepatitis, as we see it here. I guess I owe you an apology for bringing up the subject of dysentery again, but it is so prominent in my mind that we do have, as a not uncommon complication of dysentery, acute hepatitis, that must be looked for in this condition, just as we should for other more disastrous complications as proved by diarrhea. Dysentery may be treated specifically and subside, but secondary developments with the recurrence of fever may denote an inflammatory development with acute hepatitis. Then, of course, treatment has to be directed towards the liver more than in former days of acute fulminating dysentery.

I am leery about the use of arsenic, and certainly more so when there is any involvement of the liver. Occasionally, there is abscess, but more frequently there is disseminated infection of the liver. On exhibit at this meeting, I had two cases of acute hepatitis complicating acute fulminating bacillary dysentery, in which there was subsidence of bloody stools and fever for a few days when exacerbation occurred, and examination of the patient subsequently showed enlargement of the liver.

Syphilis of the liver is certainly not a rare condition in its various manifestations. Syphilis of the liver in 50 per cent of cases will show a positive Wassermann, but those enlarged livers in the chronic dyspeptic must often be suspected of being syphilitic hepatitis. In such cases, after the administration of iodides, for example, subsequent examinations will show a positive Wassermann. In syphilis of the liver with partial obstruction, which looks like a severe disease because of the patient's loss of weight, ascites, and subsequent severe conditions developing gradually, the Wassermann may be repeatedly negative, but in a few patients I had the ascitic fluid was strongly positive.

In other conditions of liver disease due to secondary degeneration, such as cirrhosis, we must go further than the different measures directed towards the liver. In such cases, it is true, glucose solution will help us, but it appears that better circulation to that organ and to the kidney—for there is a renal syndrome finally in cirrhosis—is needed and these conditions are improved by the combination of aminophylline with the glucose solution; it gives better results than just simple glucose.

One word in closing in reference to the continuation of liver disease by conditions of an inflammatory nature. I do not know which comes first. The best treatment is removal of the gallbladder containing crystalline stones. I still believe there is a place for the duodenal tube, for although the gallbladder and stones have been removed, drainage of the duodenum will remove the crystals. Digestive symptoms are automatically relieved by a cholesterol free diet in those cases.

Dr. Allan Eustis (New Orleans): There is very little I can add to what Dr. Portis said. I would like to expand on some of the remarks made. He spoke about the blood dyscrasias and liver involvement. It is a question which is first and which is secondary. I was very much impressed by this in a patient recently observed who died about a week ago. I had observed this man for 25 years. He started with hypertensive heart disease, had passive congestion of the liver, and I had been treating the liver for 25 years. He had definite symptoms of a chronic gallbladder but refused operation, but finally in 1935 he was forced to have a cholecystectomy. At operation, the liver was found to be hob-nailed. Up to that time he had no blood dyscrasias whatever. So far as there was any knowledge of it, and so far as we could tell, he had primarily a liver condition. About a year ago, he began to develop anemia, which was progressive in character, and finally, he developed aplastic anemia from which he died. Large doses of liver extract were given without any result. The liver was enlarged and hob-nailed at autopsy and the spleen was rather enlarged, also rather fibrous in character. I have not had a report on the bone marrow yet, so I do not know what was the cause.

The point I want to emphasize is that we do have a severe blood dyscrasia secondary to liver disease rather than liver disease secondary to blood dyscrasia.

One other point I want to emphasize and that is the association of liver disease in thyrotoxicosis. We often forget the liver in this condition. I wish to emphasize the importance of high carbohydrate diet and low protein diet in the treatment of acute thyrotoxicosis preparatory to operation.

I would like to stress the differential diagnosis between obstructive jaundice and severe jaundice from acute hepatitis from poisons such as arsphenamine. In these cases, there is one important point and that is in obstructive jaundice, if the jaundice has obtained for four days, there is a negative aldehyde test; there is no urobilinogen in the urine. On the other hand, in hepatitis there is always a positive aldehyde test and a very strong one.

Another point is, as Dr. Portis stated, that the liver is the first line of defense to endogenous and exogenous poisons. You are familiar with the damage of arsenic and other exogenous poisons, but there is also the influence of intestinal poisons. I am firmly convinced that the absorption of intestinal poisons has a deleterious effect on the liver. You will recall also many years ago the paper I read before the society on the treatment of liver disease in which I brought out the importance of carbohydrate feeding, and that that paper said the day will come when the obstetrician who has a case of eclampsia in practice will be



as open to criticism as one with a case of septicemia.

One other point I wish to call attention to—many general practitioners overlook liver dysfunction in cardiac failure. Dr. Portis called attention to passive congestion of the liver in this condition. I again wish to emphasize the importance of thinking of diet in treating heart conditions.

Dr. Sidney A. Portis (In conclusion): Dr. Silverman emphasized the fact that hepatitis may be associated with cases of bacillary dysentery. This fact has been known for many years, and focal necrosis may occur from bacillary dysentery similar to that produced by typhoid fever.

The question of duodenal intubation and its therapeutic advantages has again been raised. I am not at all convinced that the aspiration of large amounts of bile is advantageous to the body economy, and if continued routinely may affect the amount of vitamin absorbed from the gastrointestinal tract. Furthermore, I have seen patients with biliary fistula develop a hemorrhagic diathesis which is difficult to control. In answer to the question as to whether or not blood dyscrasias are the precipitating factor or the result, I can only say that it works both ways. I would, however, in this connection, like to emphasize one type of blood dyscrasia, which I think is related to liver disease, that is a group of patients who have chronic cholecystitis, a hypochromic anemia with leukopenia, and an achlorhydria. If this cycle is not broken up by a cholecystectomy, patients frequently develop a true hyperchromic or pernicious type of anemia.

The changes that go on in the liver as the result of right ventricular heart failure are frequently overlooked, and therefore a high carbohydrate, maintenance protein intake should be indicated in patients with this type of heart disease.

The question of thyrotoxicosis in liver disease and the need for a high carbohydrate, low protein diet as a protective measure in thyrotoxicosis has been raised. If I may digress on that point, I should think that the reason for the high carbohydrate diet in a thyrotoxicosis is interdependent on several factors: Firstly, the increased rate of metabolism; secondly, the need for adequate carbohydrates to metabolize fat; thirdly, since the glycogenic reserve of the liver is reduced because of the utilization of this glycogen, adequate sugar should be given; fourthly, it takes much more energy on the part of the body to metabolize proteins than it does carbohydrates, even though the former is a factor in the increased glycogenic reserve of the liver; fifthly, it has been known for some time that carbohydrates, particularly lactose, are a factor in changing the proteolytic flora to aciduric flora. There is some evidence in the literature that calcium is more readily absorbed in the presence of an aciduric medium. Therefore, if one

should possibly develop a postoperative hyperparathyroidism, this type of diet should be an added protective measure, and it has been known experimentally to prevent tetany in animals who have been subjected to thyroid-parathyroidectomy.

---

## THE DIAGNOSIS AND TREATMENT OF URINARY INFECTIONS IN CHILDREN\*

J. D. YOU MAN, M. D.

SHREVEPORT, LA.

Pyelitis is a common disease in childhood. It occurs four times more frequently in girls than in boys over one year of age, and below one year the incidence is about equal.

### CLASSIFICATION OF PYELITIS

For clinical purposes pyelitis can be divided into three groups. Group one includes the many cases that occur concurrently or secondarily to an acute infectious disease. Most of the patients in this group get well without any specific treatment. Group two are those cases which clear up and remain well following treatment with urinary antiseptics. Group three is the one that I particularly want to bring to your attention. It consists of those cases of acute and chronic pyuria whose urine continues to show 2 to 5 or more pus cells per high power field after one month's intensive medical treatment, and those cases of pyelitis that recur repeatedly.

*Acute pyelitis* is relatively simple to diagnose. The onset is usually sudden with or without a chill, high fever of the hectic type, vomiting, dysuria, frequency and loss of appetite. There may or may not be tenderness over the kidneys. The high fever usually lasts about a week and then drops by crisis or lysis. It is well to remember that the urine taken early in the disease may not show very much and therefore repeated specimens are advised. The urine in these cases shows pus, blood, casts, and bacteria. The colon bacillus is the offending organism in 50 per cent of the cases;

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

staphylococcus and streptococcus occur less often, and very frequently a mixture of organisms is found.

A word here about the collection of specimens. The penis in males should be thoroughly cleansed with soap and water, and a catheterized specimen in girls is the only one worthy of examination. This may be obtained by cleansing the vulva and passing a small soft rubber catheter, or in very young children by using a ureteral catheter.

The *pathology* in these cases is not a simple inflammation of the kidney pelvis. A true pyelonephritis exists with acute inflammatory changes in the parenchyma as well as in the pelvis of the kidney, whether the infection be of retrograde, lymphatic, or hematogenous origin.

TREATMENT OF ACUTE PYELITIS

The treatment of acute pyelitis in children consists in the free administration of fluids by mouth and by needle, the correction of toxemia and acidosis, and careful attention to bowel elimination.

Until recently alkalies were about the only drug that was advised in this very acute stage, but since sulfanilamide has been introduced we now have a potent urinary antiseptic available.

Children tolerate sulfanilamide well, apparently even better than do adults. The usual dose is from 10 to 30 grains daily for children under two years (approximately 10 grains per 20 pounds of body weight). Between two and six years from 30 to 40 grains daily and from six to thirteen years from 30 to 50 grains daily. Summerfeldt and Mitchell report cases of children under two years old in whom 50 grains of sulfanilamide daily were used with no untoward effect. They reported 75 per cent cures, which is much higher than is usually seen in adults. They reported minimal toxic symptoms from the drug and found only one patient who developed severe cyanosis and was unable to continue with it. An equal or larger dosage of alkali should be administered with the sulfanilamide as it appears to be more effective in an alkaline urine, and this also tends to overcome the

acidosis that must be carefully watched for in these toxic infants.

Sulfanilamide is most effective on colon bacillus and *B. proteus* urinary infections. It apparently has little value in eradication of *Streptococcus fecalis* and staphylococcus.

If sulfanilamide does not handle the infection then there are mandelic acid and methenamine to try. I believe that mandelic acid therapy should be saved until after the very acute symptoms have subsided. It is necessary to use large doses of the drug, which are not always very pleasant to take, to reduce the fluid intake, and it is essential to maintain the urinary pH below 5.5. To do this it may be necessary to use in addition to the mandelic acid a urinary acidifier such as ammonium chloride or sodium acid phosphate. Unless these conditions are maintained the results with mandelic acid will be disappointing. Mandelic acid therapy is most effective when used in *B. coli* and *Streptococcus fecalis* infections. It is sometimes useful against *B. aerogenes*. The dose Eley advises is:

Age	Total 24 hour fluid intake	Daily dose ammonium mandelate
Infancy	350 c.c.	3 grams
2- 5 yr.	500 c.c.	5 grams
6- 8 yr.	600 c.c.	6 grams
9-12 yr.	800 c.c.	8-10 grams

Methenamine should also be started after the acute symptoms have subsided. Campbell and Anderson use doses of 10 grains a day for each year of age, not giving more than 80 grains per day to any child. Ammonium chloride in half the dose of methenamine, or sodium acid phosphate in the same dose as the methenamine is used to render the urine acid. The methenamine is given for six or seven days followed by a two or three day rest, followed by more methenamine. If the drug causes gastric or bladder symptoms it should be stopped for a few days and then used in smaller doses.

There is a new preparation of the sulfanilamide group, disulon (sulfanilyl sulfanilamide) with which I have been doing some experimental work. It appears to be much more effective than sulfanilamide. It

causes decidedly fewer toxic reactions and seems to work in about 50 per cent of the cases that have been sulfanilamide resistant. As yet I have had no opportunity to try it in children.

The use of hexylresorcinol, pyridium, serenium and other dyes has been disappointing in my hands.

After the infection has subsided it is very important to search these children for foci of infection paying especial attention to the tonsils, teeth, sinuses and gastrointestinal tract, for unless these foci are eradicated the pyelitis will either not be cured or recurrences will be the rule.

Under such treatment the average patient will show a urine free of pus and culturally negative for bacteria in one to three weeks. If this is not obtained after four weeks of intensive therapy a urologic examination should be done, as it is usually an indication that obstructive pathology exists in the urinary tract, which, if not attended to, will lead to serious, often irreparable kidney damage.

#### PROGNOSIS

The prognosis in the average acute pyelonephritis is good, except in very young infants. They may run a stormy course but the condition usually clears up unless some obstruction or other pathology of the urinary tract is present.

#### CHRONIC URINARY INFECTION

The picture of chronic urinary infection is that of a pale, listless underweight child who has no appetite and is easily fatigued. There are frequent intervals of mild low grade fever for a few days, usually associated with frequency and dysuria, and at times enuresis. Often there is a previous history of acute or recurrent attacks of pyelitis. They rarely complain of pain. The urine is usually loaded with pus, though there may be as few as 2 to 5 pus cells per high power field. The organism most often found in the urine is the colon bacillus, very often mixed with staphylococci and streptococci.

In the more long standing cases, in addition to the symptoms of chronic infection,

they also show signs of renal failure as evidenced by gastrointestinal disturbances as anorexia, nausea, vomiting, headache, hyperirritability or sluggishness, and later stupor and uremic coma. Some of these cases of chronic pyuria are only discovered when a routine urinalysis is being done.

These patients with chronic urinary tract infection should first be given intensive medical treatment as outlined under acute pyelitis. If they do not show a urine free of pus and culturally free of bacteria in a month, a urologic examination is urgently needed. So also, is it needed for the patient with acute pyelitis who is not well in a month, or with recurring pyelitis, because continued medical treatment, when an obstructive lesion, or a kidney stone, or renal tumor exists, is bound to end in failure. It is here that close cooperation between the pediatrician and urologist is needed. In the eleven cases in Campbell's series of ureterovesical stricture, all had been treated medically for months or years for chronic pyelitis before coming in for examination.

#### UROLOGIC EXAMINATION

In making a urologic examination of these little individuals as many as necessary of the following procedures are done in the order given: (1) Urinalysis (pus, blood, casts and bacteria); (2) blood chemistry (N.P.N., creatinine, and  $\text{CO}_2$ ); (3) two hour P.S.P. estimation; (4) plain roentgenogram of the urinary tract; (5) cystogram; (6) intravenous pyelogram; (7) cystoscopy; (8) ureteral catheterization, at which time the individual function of each kidney is determined, and usually (9) retrograde pyelography.

The plain roentgenogram will show the size, shape, and position of the kidneys and if any calculi, foreign bodies or bone deformities in the sacrum or spine (spina bifida) are present.

The cystogram will give the outline of the bladder, whether ureteral reflux exists, which if present may make cystoscopy unnecessary, as a pyelogram is thus obtained, and whether the posterior urethra fills, a finding in congenital posterior urethral valves.

The intravenous pyelogram is not as valuable in children as in adults. Under the best of conditions only about 50 per cent of the plates are of diagnostic value and very often before definite conclusions can be drawn, especially if surgery is contemplated, a retrograde pyelogram must be made. By using skiodan, hippuran or any of the intravenous medias, which are non-irritating, bilateral retrograde pyelography can be accomplished without danger to the patient.

Cystoscopy of children is not the dangerous procedure that many would lead you to believe. Since the advent of baby cystoscopes, any age child can be cystoscoped. Campbell, Caulk, Stevens, Anderson and Helmholtz have all shown individually in a large series of cases that children stand cystoscopy better than adults. Of course, a general anesthetic is usually necessary in these youngsters.

#### PATHOLOGY

The pathology found in children with chronic pyuria is varied, as the child's urinary tract is subject to all the diseases of his elders.

Of the anomalies of the urinary tract that are found, those causing urinary obstruction and stasis, the forerunners of infection, are the most important and these consist in congenital ureteral strictures, anomalous blood vessels and bands of adhesions at the uretero-pelvic junction, congenital obstruction of the bladder neck and congenital valves in the posterior urethra. It is claimed that one-third of the cases of hydronephrosis in children are due to such congenital obstructions. Campbell, in 2420 necropsies on infants and children, has shown congenital ureteral strictures in a little over 1 per cent of the cases.

In ureterovesical stricture there may be nothing to indicate a urologic study unless a hydronephrotic kidney is palpated. When infection occurs the clinical picture, of course, is that of chronic infection and later in the disease, renal insufficiency.

The pathology seen in these cases is a stricture at the lower end of the ureter as it enters the bladder or in the intramural

portion of the bladder. The ureter above is elongated, tortuous, thickened, scarred, and angulated. The renal tissue is thinned, infiltrated and sclerosed. It is impossible to diagnose this condition without cystoscopic examination, which shows one or both ureteral orifices to be very small. They may not admit a # 4 F catheter, which normally can be easily passed in a newborn infant. When the catheter is withdrawn there is a definite grasping of the catheter by the ureter.

Without relief of the obstruction these children are doomed to die from sepsis or renal failure. The treatment consists in dilatation of the strictures with ureteral catheters. If the strictures continue to re-contract too rapidly or will not dilate it is necessary to open the bladder and incise the stricture.

There is a marked decrease in pyuria and infection with an increase in renal function and marked general improvement in the patient following such treatment, but some pus always persists in the urine and a bacteriologic cure is never obtained.

If a stricture or band of adhesions, or anomalous blood vessels, is at the ureteropelvic junction the same back pressure on the kidney exists and unless surgical relief is forthcoming kidney destruction is inevitable.

In congenital bladder neck obstruction, or valves in the posterior urethra, the same picture of dilated ureters and kidneys is present and in addition the ureterovesical valves become stretched and incontinent. In such a case a cystogram will cause filling of the dilated ureters and kidney pelves and the result will be a pyelographic study. In congenital bladder neck obstruction sufficient tissue must be removed surgically from the vesical orifice either by the resectoscope or by opening the bladder, to relieve the obstruction. If urethral valves are present they must be destroyed, cystoscopically by electrocoagulation.

Urinary calculi, or renal tumors may be responsible for the pyuria. They must first be diagnosed and treated appropriately if a cure is to be expected.

Renal tuberculosis is very rare in infants and children. Of course, its presence must be ruled out if suspected. The cystoscopic findings are usually characteristic. The infection in children is usually bilateral and the prognosis is very poor.

## SUMMARY

Closer cooperation between the pediatrician and the urologist must exist if these cases are to be found and helped. Certainly continued medicinal treatment in such cases as described with congenital obstructive anomalies of the urinary tract, calculi, or renal tumors would fall far short of what we hope for from modern medicine. A good rule to follow is if pyuria continues after four weeks of intensive medical treatment as outlined, a urologic examination should be done as irreparable kidney damage may be occurring that could be prevented.

## BIBLIOGRAPHY

1. Anderson, R. L., and Lee, J. J.: Urologic conditions in children, *Penn. M. J.*, 40:623, 1937.
2. Caulk, John R.: The treatment of kidney infections in infants and children, *Mt. Sinai Hosp.*, 4:614, 1938.
3. Helmholtz, H. F.: The diagnosis and treatment of infections of the urinary tract in childhood, *Minn. Med.*, 15:703, 1932.
4. Campbell, Meredith F.: Chronic urinary infection in infancy and childhood, *J. A. M. A.*, 99:2231, 1932.
5. Stevens, W. E.: Diseases of the urinary tract during infancy and childhood, *J. Urol.*, 23:61, 1930.
6. Summerfeldt, Pearl and Mitchell, D. R.: Treatment of urinary infections in children with sulfanilamide, *J. Urol.*, 41:59, 1939.
7. Thomas, G. J., and Bartin, J. C.: The role of congenital anomalies in the production of urologic conditions in children, *J. Urol.*, 33:611, 1935.
8. Campbell, Meredith F.: Vascular obstruction of the ureter in children, *J. Urol.*, 36:366, 1936.
9. Fister, G. M., and Smith, E. H.: Aberrant renal vessels in children, *J. Urol.*, 26:175, 1931.
10. Campbell, Meredith F.: Intravenous urography in infants and children, *J. Urol.*, 32:55, 1934.
11. Campbell, Meredith F.: Congenital bilateral ureterovesical junction stricture in infants and children, *J. Urol.*, 26:529, 1931.
12. Stephen, Edgar H. M.: Pyelitis in children, *M. J. Australia*, 1:485, 1938.

## DISCUSSION

Dr. Hugh T. Beacham (New Orleans): Many adolescents are in a poor state of health due to unrecognized or inadequately treated urinary tract infections which were present during childhood. Many of these patients require surgery when they reach the urologist, whereas conservative therapy would have sufficed had they been properly managed within a reasonable period of time after the

onset of their initial infections. As Dr. Youman has so emphatically stated, the cooperation of the pediatricians is absolutely essential for the correct management of these urinary tract infections, and it is the plea of all urologists that these little patients be seen before irreparable damage has been done.

Dr. Youman has wisely pointed out that one must not be lulled into a feeling of false security after the acuteness of the condition has subsided in many of these cases, because we know that often there is an anatomic, pathologic of course, background in many of them. For that reason they should be completely investigated by the urologist. Many are the cases in which cystoscopic examination and manipulation prove time and tissue saving. We are rightfully enthusiastic about pediatric cystoscopy—its value and importance cannot be overemphasized.

The essayist has discussed the matter of pharmacologic therapy in a very commendable manner. I agree with him regarding all of his statements. Undoubtedly sulfanilamide is one of our most valuable drugs. The administration of the same should be accompanied by the use of alkalies as these patients are especially susceptible to acidosis; furthermore, we must be very observant regarding side-reactions, some of which may prove distressful. As yet I have seen no cases of yellow atrophy of the liver in children but I have seen one such case in an adult following prolonged sulfanilamide treatment. In this connection, we must keep in mind that neo-prontosil is less toxic than sulfanilamide and I found it to be about as efficacious. As has been stated, sulfanilamide has little value in eradication of *Streptococcus fecalis* and staphylococcus. For the former we can employ rather large doses of urinary acidifiers and insist that the patient be given considerable quantities of liquids. For the latter, we must resort to frequent alternation of the reaction of the urine and must not lose valuable time in searching for some obstructive basis for the infection. Dr. Youman has certainly made correct statements regarding mandelic acid therapy. This drug undoubtedly is of value but the cases in which it can be satisfactorily given are not as numerous as some writers would have us believe. Regarding the acidification of urine it might be stated that if the youngsters can swallow enteric-coated tablets, ammonium chloride may be used. In the liquid form, as we all know, this preparation is very distasteful although many of these little patients take it like soldiers. In regard to sodium acid phosphate it must be remembered that when it is given in sufficient dosage to be beneficial it usually causes such gastrointestinal distress that it cannot be tolerated.

The renal function of these patients must be studied. Any medicinal preparation's efficacy will depend to an important degree upon the activity of the kidneys. I still regard the Fishberg con-

centration test as one of our best methods and I think it should be employed in every case.

With the consent of Dr. Youman, I wish to show roentgenographic slides of three cases.

The first shows markedly dilated ureters with reflux from the bladder due to infection. You will note that the pelves and calices display little evidence of infection in this female patient of 18 months.

Case No. 2 presents a very extensive process. There is dilatation of the bladder, ureters, pelves and calices. This little boy suffered because of congenital valves in the posterior urethra. The destruction of renal tissue with infection was responsible for his demise. Had he been given the benefit of early urologic investigation, the predisposing condition responsible for his death could have been corrected. Slide B shows extremely dilated ureters in a lateral view.

Case No. 3 demonstrates obstruction to the ureters caused by enlargement of retroperitoneal lymph glands due to sarcoma. As is noted the calices are markedly dilated. Secondary infection and retention of nitrogenous products hastened his expiration.

Dr. S. George Wolfe (Shreveport): This subject has been covered so completely by the paper presented that there is little for a pediatrician to add. I can say, however, that it was the urologist who taught us that pyelonephritis is not a simple disease. We should have recognized that years ago, but we did not. It is not properly recognized by all of us yet. Pyelonephritis is not a simple disease and the prognosis is very uncertain, because the treatment is not as simple as one might think, even granting that no anatomic defects are present. Since the advent of sulfanilamide there is a temptation to estimate the amount of pus in the urine, give the drug and rest content that the patient will be well in a day or so, but estimation of pus in the urine is only half of what one should do before proceeding to treat a case of pyelonephritis. One should determine the causative organism, which is relatively simple to do. Nor does one have to resort to cultures, because a simple strain of the urinary sediment in practically every instance reveals the causative organism. In many of these cases it is shown that two or more organisms occur and, as the essayist has pointed out, sulfanilamide has no effect on *Streptococcus fecalis* and most staphylococci. It is in these infections that mandelic acid is of most value. Finally, one should not be content with cure from a standpoint of absence of pus in the urine, but also one should demand sterile urine before one pronounces these patients cured.

Dr. H. W. E. Walther (New Orleans): I think we all realize that many of these children with urinary infections are seriously ill; not infrequently they are undernourished, and for this reason building them up physically is as important

as treating the lesion in the urinary tract. They need physiologic rest, and this can be accomplished best by mild sedation through the use of suppositories.

I am sorry that I can not align myself with the enthusiasts over sulfanilamide. Furthermore, I would sound a warning that the sulfanilamides are not always tolerated well by children. Certainly, I would never give 40 grains daily of the drug to any child, as the essayist quotes one clinician as recommending. We always precede sulfanilamide therapy with small injections of bacterial antigens, in order to build up the patient's antibodies. Our experience shows, in about 33 per cent of all urinary infections, that sulfanilamide fails to retard the growth of bacteria.

I agree with Dr. Youman that cystoscopy is easy to perform in children; a short gas anesthetic is employed in most instances. If there occurred more consultations between pediatricians and urologists, fewer of these cases would go unrecognized. Rarely can they be classed as emergency cases; symptomatic treatment should be instituted until they can be referred to a urologist for cystoscopy. The majority of them will ultimately require cystoscopic care.

---

## THE EFFECT OF GASTRIC DIGESTION ON THE ALLERGIC POWER OF POLLEN\*

NARCISSE THIBERGE, M. D.†

NEW ORLEANS

For a long time such progressive allergists as Borne of Indianapolis, Cazort of Little Rock, Bernton of Washington, Vaughan of Richmond, Stroud of St. Louis, Black<sup>1, 2</sup> of Dallas, and a few others have been interested in the oral administration of various preparations of either the plant or the pollen of sensitizing plants. The results, however, have been inconstant, and for the most part oral administration has not been satisfactory. On the other hand, the occasional favorable results reported cannot be attributed entirely to enthusiasm or to optimism. They may not be permanent, yet they seem to justify the conclusion that the allergen reaches the general

---

\*Read before the Orleans Parish Medical Society, July 10, 1939.

†From the Department of Medicine of the School of Medicine of Louisiana State University, and the Allergy Clinic of Charity Hospital of Louisiana at New Orleans.

circulation unaltered as to identity and that it confers a measurable amount of resistance upon the allergic subject.

I have been interested in oral administration of allergens for many years, and in 1937, when the Southern Medical Association met in New Orleans, I had the privilege of serving as leader of a round-table discussion on the subject. The general conclusion then was that the oral route of administration would probably never replace the hypodermic route. A rather similar conclusion was reached at a recent meeting of the Chicago Society of Allergy,<sup>3</sup> the members of which insisted that at the present time the oral use of pollen should be considered in the experimental stage. I believe that this conclusion is wise, and that the method should be considered in the earliest experimental stage. Certainly it is not fit for general use by the profession, and still less for lay use.

Fishbein<sup>4</sup> in a recent lucid review of the subject in the *Journal of the American Medical Association* admitted the effectiveness of the oral administration of poison ivy, but condemned as futile, at least for the present, the oral administration of pollens. The effectiveness of the oral administration of poison ivy may perhaps be due to the fact that its fat soluble antigen remains unaltered by gastric digestion, so that it enters, unchanged, into the defensive cells through the absorbent villi of the intestines.

REPORT OF PATIENTS TESTED BY ARTIFICIALLY DIGESTED POLLEN

As early as 1916, in collaboration with the late Dr. Sheppegrell, I administered ragweed to some 20 patients with hay fever, in the form of paste or tincture or pills. No results were noted except such as are observed whenever a new form of therapy renders the patient optimistic enough to attribute to it such improvement as is actually brought about by natural causes. In 1938 my interest in the subject was revived, and I am reporting herewith a study of 41 patients tested by artificially digested pollen.

As each of the patients applied for treatment to the Allergy Clinic of Charity Hospital of Louisiana at New Orleans he was

tested intradermally with each of the following antigens:

1. Plain saline.
2. Grass pollen extract 1:1000.
3. Ragweed pollen extract 1:1000.
4. Ragweed pollen extract 1:1000 artificially digested with pepsin and hydrochloric acid.
5. Ragweed pollen extract 1:1000 artificially digested with pancreatine.
6. Plain gastric secretion 1:1000.
7. Plain intestinal secretion 1:1000.

The predigested ragweed extract duplicated as closely as possible the results of gastric digestion. Another preparation of ragweed extract predigested with intestinal and pancreatic enzymes also duplicated the results of normal processes as closely as possible. Both preparations were made by Dr. George Fasting.

In 29 of the 42 tests (one patient was tested twice) the tests were positive for ragweed. In 23 instances out of these 29 it was found that the intradermal reaction was either reduced or obliterated by gastric digestion but intensified by pancreatic digestion. In four of the six negative cases in this group there was no reaction, and in the remaining two a reversed reaction took place, for which I can offer no suitable explanation.

The results were less spectacular in the 13 tests positive for grass allergy, and they are reported as controls rather than as an attempt to prove any selective action of the digestive juices. In eight of the 13 cases the patients were not allergic to ragweed, and whether or not it was digested could not influence the possible reaction. In the remaining five cases the fact that the reaction was more marked with pepsinized than with plain ragweed is perhaps to be explained by the protein in the pepsin. The results may possibly be due to the hormone itself, but this is unlikely. I have previously conducted a study on hormones in our clinic, and was unable to establish characteristic sensitivity to any of them. I do not believe, therefore, that the reactions I am reporting were influenced to any considerable extent by

either pepsin or pancreatic extract in so far as their protein content is concerned.

#### PROPOSED STUDY

I propose to study a series of cases in which enteric coated pills of increasing strength will be administered. I have reason to be hopeful that better results will follow this type of administration on the basis of the following observation: The administration of 1/12 grain of ragweed pollen in enteric coating to a patient extremely sensitive to ragweed produced a mild general disturbance with the reappearance of the local reaction at the site of the previous test for ragweed 48 hours after local manifestations had subsided. I also propose in the future to test all allergic patients seen in the spring with an antigen of predigested grass pollen, for control purposes.

#### SUMMARY AND CONCLUSIONS

1. From the data presently available it may be concluded that artificial gastric digestion causes ragweed pollen to lose some of its antigenic power.

2. There is some justification for hoping that enteric coated pills of ragweed pollen may prove more effective than plain pills.

#### REFERENCES

1. Black, J. H.: Oral administration of pollen, *J. Lab. & Clin. Med.*, 12:1156, 1927.
2. Black, J. H.: The oral administration of pollen; a clinical report, *J. Lab. & Clin. Med.*, 13:709, 1928.
3. Chicago Society of Allergy, *J. A. M. A.*, 112:1171, 1939.
4. Fishbein, M.: Editorial, *J. A. M. A.*, 112:1159, 1939.
5. Barksdale, I. S.: Oral administration of allergens in the prevention and treatment of hay fever and bronchial asthma; preliminary report, *M. Rec.*, 144:26, 1936.
6. Gatterdam, E. A., Jr.: Oral administration of pollen extracts, hay fever and asthma; preliminary report, *Southwest. Med.*, 17:199, 1933.
7. Sledge, R. F.: Treatment of hay fever with alum-precipitated pollen extract, *U. S. Naval M. Bull.*, 36:18, 1938.
8. Stier, R. F. E., and Hollister, G.: Desensitization by oral administration of pollen extracts, *Northwest. Med.*, 36:166, 1937.
9. Touart, M. C.: Hay fever; desensitization by ingestion of pollen protein, *New York M. J.*, 116:199, 1922.
10. Urbach, E.: Desensitization of persons with pollen allergy by per-oral administration of pollen peptones, *Klin. Wehnschr.*, 10:534, 1931.

#### DISCUSSION

Dr. Edgar Hull (New Orleans): I regard Dr. Thiberge's work as an important contribution to the subject of allergy for one reason if for no

other; he is attempting to simplify the treatment of patients with allergy. In these days in which medical treatment is becoming so complicated, any attempt to simplify therapy is most welcome.

In theory, desensitization to pollens by oral administration, should be capable of accomplishment. We know persons can be sensitized to substances taken by mouth and if sensitization may be accomplished by the oral route, desensitization by the same route should be possible. Desensitization to foods to which persons are allergic is frequently accomplished in the cases of allergy to meat, milk or eggs, by oral administration of amounts of these substances. There have been occasional reports of successful desensitization to pollens by oral administration in the literature within the last twenty years by such men as Black, Touart, Thommen and Gatterdam. Rowe, in his new book on allergy states "this route may be of more value than generally assumed today." Of course in oral administration of pollens with the aim of desensitization, the big enemy will be gastric digestion because we want absorption of allergens unchanged. Since the allergens are presumably proteins, we expect them to be altered by the pepsin of the gastric juice, trypsin of the pancreatic juice and erypsin of the succus entericus.

Dr. Thiberge's work, I think, shows definitely that pepsin will alter the antigenic power of ragweed pollen extract. An interesting observation of his, however, is that artificial intestinal juice did not diminish antigen properties to any significant degree. I think it probable that natural intestinal juice will perhaps alter this pollen more than artificial juice because natural juice would contain enterokinase of the succus entericus which is the principal activator of pancreatic trypsin. It might well be that the prevention of gastric digestion is all that is needed for sufficient amounts of unchanged antigen to be absorbed into the body circulation.

All of us, I am sure, wait with considerable interest, for reports from Dr. Thiberge as to the effectiveness of oral administration of pollen extract in enteric coated pills. If this route and method of administration prove effective it will be a great boon to the physicians and to the patients; more especially to the patients who are the ones who have to suffer continued subcutaneous or intramuscular injections of pollen extract.

Dr. Nicholas K. Edrington (New Orleans): The work of Dr. Thiberge with predigested pollen is indeed very interesting and will no doubt lead to a better preparation of pollen extracts for oral administration. The advantages of oral pollen administration are:

(1) The ease of administration; (2) gives us something definite to do for those patients who do not want a hypodermic injection, especially children; (3) it offers a means of continuing a course of treatment when the patient is away from obser-



vation; (4) in hypersensitive individuals the treatment by mouth can be more tolerated; (5) combined with the hypodermic injections it seems to produce better results and reduce the necessity of too frequent injections.

The results however in desensitization with oral pollen mixtures have been very unsatisfactory. It is true that from time to time and from here and there we get some reports of success, but the consensus of opinion of the allergist is that oral pollen therapy as applied today is a failure. This is no doubt due to the difficulty of adjusting the dose to the individual's needs. One dose due to favorable conditions in the gastrointestinal tract will be fully absorbed, another may not be absorbed at all, yet the schedule calls for a still larger dose the next time, which for all that we know may be four or five times as large as the last shocking dose. The result is that the patient suffers from a constitutional reaction varying from an attack of nausea and vomiting to violent cramps and intensive diarrhea with mucous or blood in the stools.

Oral pollen therapy is not a recognized procedure and has not been accepted by the Council of Pharmacy and Chemistry of the American Medical Association, yet oral pollen is being manufactured by several biologic houses and advertised to the laity.

Dr. Thiberge's work may lead to the proper standardizing of oral pollen therapy which will be a great asset to our present armamentarium in the management of our hay fever patients.

Dr. Narcisse F. Thiberge (In conclusion): A point was raised at the round-table meeting of the Southern Medical Association that the doctors were always working things out against their own interest. In other words, if we simplify the treatment for the patient we cheat ourselves of a good deal of work. However, I think we should go beyond that and lose sight of financial consideration and make it as easy as possible for the patient.

There is one point I want to clear, which was brought out in Dr. Hull's discussion. He compared sensitization of food with pollen. We know that there is a similarity but there is also a difference. Desensitization with food is easier than hypodermic sensitization with pollen because pollen is interfered with by gastric digestion. Some of the cases where the oral pollen has been successful may be due to the inactivity of the gastric juices. I think in cases where we have had benefit it might be that the digestive function may have been deficient and allowed the absorption of the pollen extract in its whole identity without interference of gastric digestion.

Another point that I want to bring out is that the skin reaction is not an expression of immunity. In other words when you obliterate skin reaction you do not necessarily hypersensitize completely because

the sensitizing process in the pollen and the immunizing process may be entirely different and one is not the expression of the other. In other words repeated tests on a patient who is improving may remain as active; when we speak of skin reaction we still speak of a mysterious element.

Dr. Edrington brought out a good point about the concentration and exact dosage. The principal statement he made was that, with the pills, there is no interruption in the treatment. That point should be stressed.

In regard to the general reaction from oral administration, I do not think we should worry much about that because it is my impression that the dosage administered orally may be increased to many times the dose given hypodermically without much danger. There is a possibility of discomfort which some may resent very much. As I mentioned, in one case, as little as a twelfth of a grain produced a general reaction; some gastrointestinal disturbance, the reappearance of the reaction in the tested area. By gradual and careful increase of the dose it may be possible to spare the patients even that discomfort.

I wish to say that materials have been furnished me for experimental purposes by the Lafayette Pharmaceutical Company. The company has furnished us about two thousand dollars worth of pills gratis.

---

## IRRADIATION THERAPY IN ENDOCRINE DYSFUNCTION\*

J. N. ANÉ, M. D.

AND

LEON J. MENVILLE, M. D.

NEW ORLEANS

With improved apparatus and a better understanding of technical factors, along with increased knowledge of its biologic effect, irradiation therapy is now believed to be a dominant therapeutic measure available to the medical profession. While it is commonly associated with the treatment of cancer, it has proved as effective in the treatment of non-malignant diseases.

In recent years, the medical profession has obtained valuable information concerning the functions and effects of the glands of internal secretion upon the human body, and this knowledge has opened a new field

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

for irradiation therapy. While it is true that roentgen therapy has been employed frequently for the relief of endocrine disturbances and in certain instances has proved more effective than the hormones themselves, we must not permit our enthusiasm to cause us to overestimate its value and make unreasonable predictions. We should remember that the success of a physician is based upon his skill and judgment and not upon any particular agency with which he practices medicine.

It has been known for a long time that different tissues and organs react differently to irradiation and, in those conditions believed to be due to endocrine imbalance, it is usually applied to suppress excessive action of the organ or to stimulate a dormant action to one of activity. Its principal use has been in functional disturbances of the thyroid, parathyroid, pituitary, ovary, adrenals, breast disturbances, and bone dyscrasias. It is to be appreciated that if any form of treatment is to be effective and give good results, it must be applied scientifically and its application must be based upon experimental evidence and clinical observations. With this thought in mind, we would like to discuss briefly some such experimental observations and clinical results which have been obtained by certain investigators on the application of irradiation therapy on some of the glands of internal secretion.

#### PITUITARY GLAND

For over 20 years irradiation therapy has been applied to the pituitary gland for various gynecologic conditions, and recently this form of therapy has been applied to this organ in certain cases of diabetes mellitus and cases of so-called essential hypertension. It is of interest to know whether or not the patients who responded favorably to this form of treatment were the result of psychic effect, or, in reality, of a direct influence of the therapy on the pituitary. In other words, will therapeutic doses of x-ray influence the non-adenomatous pituitary gland? Recently, Lawrence, Nelson, and Wilson,<sup>1</sup> of Yale University School of Medicine, answered this question by certain

experimental work in the irradiation of the pituitary gland of female albino rats. They decided from their observations: "It is fair to conclude that although the pituitary glands of young albino rats are relatively radio-resistant, nevertheless, they can be influenced by x-ray therapy. The immediate period of suppression is followed by gradual recovery of the pituitary and consequently of the organs influenced by its hormones." They also stated that no definite clinical implication can be drawn, but their experiments suggest that non-adenomatous human hypophyses can be influenced by therapeutic doses of the roentgen ray.

In regard to the interrelationship between the pituitary gland and the ovaries, Lacassagne,<sup>2</sup> of Paris, conducted certain experiments on female animals by destroying their hypophyses with radium and observing the effects on their ovaries. He found considerable histologic changes in the ovaries; one-third of the anterior lobe suffices to preserve the usual genital activities, even if the remainder of the anterior and the entire middle and posterior lobes are completely destroyed.

Biedl, Aschner,<sup>3</sup> and others showed many years ago that extirpation of the anterior lobe of the pituitary in young animals was followed by atrophy of the ovaries and uterus. Gellar<sup>4</sup> produced the same results by intensive roentgen ray irradiation of the pituitary. The intimate interrelationship between the pituitary and the ovary has now been fully established by the work of Dixon and Marshall<sup>5</sup> and others.

The pituitary gland has been credited by certain authors as fostering functional disturbance in organs remotely situated. For instance, Tierney and Engelbach<sup>6</sup> believe that, both subjectively and objectively, the function of the pituitary gland is dualistic. Thus, disease of the gland may cause amenorrhea, dysmenorrhea, epileptiform attacks, obesity, headache, definite changes in the osseous, genital, and dermal systems, increased blood pressure, fever, and involuntary muscular contractions. These investigators also state that the analogy between

these syndromes and those coincidental with disturbances of the thyroid is evident.

Since it is reported that a diseased pituitary gland may produce epileptiform attacks, it may be interesting to present the report of a case of epilepsy associated with pituitary disturbances responding to x-ray therapy recorded by Bernard Seligman,<sup>7</sup> of Kings County Hospital, Brooklyn. He reports: "A case of hypopituitarism without evidence of hypophyseal tumor in which the pituitary was irradiated and no seizure occurred for two years thereafter." Dr. Seligman believes that the course of this case showed presumptive evidence of amelioration of the "fits" by roentgen therapy, although the signs and symptoms may have been due to a small chromophose adenoma of the pituitary. This treatment would be especially advantageous in cases of epileptic seizures associated with tumors but which did not cause marked local pituitary symptoms.

#### ADRENALS

The effects and clinical results obtained by irradiation of the pituitary gland have been known for a long time. Similar knowledge concerning the adrenals is now also well understood. Some investigators claim that the adrenals are not easily affected by the roentgen ray. The experimental work of Cottenot,<sup>8</sup> Frey,<sup>9</sup> Pozzi,<sup>10</sup> Stephan,<sup>11</sup> and Strauss would seem to confirm this, but the works of Zimmern and Baude probably offer a correct interpretation of the results of roentgen ray therapy to the adrenals. The latter suggest that just as the normal thyroid is unaffected by irradiation therapy, in a condition of hyperactivity, both the thyroid and adrenals are sensitive. However, they believe it possible that their good clinical results from irradiation of the adrenals in hypertension may be due to an effect on the vegetative nervous system rather than on the adrenals themselves. These investigators are supported in their views by Gouin and Bienvenu<sup>12</sup> and others.

Irradiation of the adrenals for hypertension was used years ago. As far back as 27 years, investigations were made by Zimmern and Cottenot<sup>13</sup> on the effects of irradi-

ation on the adrenals in human subjects. In this study, individuals with abnormally high arterial pressure were selected. In some cases, a single exposure to irradiation sufficed to produce well-marked diminution in pressure, but in most instances a series of treatments over a period of several months was necessary to reduce it to normal.

Two years after Zimmern and Cottenot's observations, or 25 years ago, Eisler and Hirsch killed several rats with very large doses of x-ray. Soon after death the adrenals were extirpated and an extract made in physiologic saline solution. As controls, the same weight of adrenals from normal animals were taken and similarly extracted. These extracts were injected into the jugular veins of rabbits, while the blood pressure was registered in the carotid. In the case of extracts of irradiated glands, the blood pressure rose rapidly but very soon returned to normal; in the case of extracts from normal adrenals, a similar rise in the pressure was observed, but the elevation was maintained for a considerable time. The results were well marked in the case of four irradiated animals. The reported observations of these two investigators would indicate that irradiation therapy to the adrenals does affect blood pressure.

The adrenals have been irradiated in cases of diabetes mellitus for some time and it is of interest to present the work of Desplats, Langeron, and Béra<sup>14</sup> who used roentgen therapy over the adrenals to reduce the blood sugar in patients suffering with this disease. These investigators observed a diminution of sugar in the blood and urine. Assuming that there is sufficient insulin in the blood, the explanation of this phenomenon is given through the dilatation of the arteries. The exposure of the vegetative nervous system to roentgen rays brings a better blood supply into the vessels of the muscles, and, thereby increased muscular combustion of blood sugar is produced. However, that the effect of roentgen rays on the vegetative nerves may be a direct one is evidenced by the fact that Langeron and his co-workers report an increase of urine elimination immediately

after roentgen therapy and before the sugar elimination is diminished.

Desplats<sup>15</sup> accidentally discovered in 1931 that, in the case of diabetes mellitus treated with roentgen ray over the region of the adrenal glands, arterial obliteration of the limbs expressed in the form of intermittent claudication was greatly improved and that the patient walked with greater comfort. Zimmern<sup>16</sup> reports similar results. It would seem from the observations of these physicians that the effect on the arterial system may play a part in these cases of diabetes mellitus in which the adrenals were irradiated. At the present time, numerous reports have been made supporting the idea that the pituitary and the adrenals are responsible for essential hypertension. It is the belief among many physicians that both glands secrete a substance which increases blood pressure and blood sugar and that a hyperfunction of the pituitary is frequently accompanied by hypertension and hyperglycemia, and the application of irradiation therapy to these glands will affect the hypertension and hyperglycemia.

While we personally believe that irradiation therapy has a distinct value in treating certain cases of so-called essential hyper-

tension, we should treat such conditions only in consultation with the endocrinologist and internist. A warning should be sounded to those inexperienced physicians, owners of x-ray apparatus, against the indiscriminate use of irradiation therapy in all types of hypertension. Not only would such a practice occasion a distrusting attitude of the medical profession to this type of therapy, but grave danger to the patient might be the result. When applied judiciously and intelligently by an experienced radiologist, this form of therapy, along with other forms, will prove without doubt of inestimable value in certain cases of hypertension, without producing any danger to the organ treated.

MENOPAUSAL DISTURBANCES TREATED BY  
ROENTGEN THERAPY OF THE PITUITARY

This form of treatment, first used by Werner<sup>17</sup> in 1923, is now recognized as having great influence on the symptoms of patients during their period of menopause. It appears that as the ovary becomes less active the pituitary becomes more active, and some believe that the symptoms of the menopause are due to over-activity of the pituitary. Acting on this theory, Werner

TABLE I

IRRADIATION THERAPY OF PITUITARY AND ADRENALS FOR  
HYPERTENSION AND DIABETES MELLITUS

	Cases hyp. and diab.	Improved both cond.	Improved hyp. only	Improved diab. only	Un- improved
Culpepper, Madden, Olson and Hutton, Chicago, Ill., Endocrinology, February, 1938.....	32	9 or 28%	8 or 25%	3 or 9%	2 or 6%

TABLE II

RESULTS OF IRRADIATION THERAPY IN ESSENTIAL  
HYPERTENSION

	Cases	Definitely improved
Hutton, J. H. and Madden, E. E., Chicago, Ill., Ill. Med. J., August, 1936.....	234	123 or 52.6%

RESULTS OF ROENTGEN THERAPY TO THE PITUITARY AND SUPRARENALS FOR  
ESSENTIAL HYPERTENSION

	Collected cases	Benefited
Boswell, F. P., Montgomery, Ala., Industrial Med., May, 1938.....	1000	75%

Tables I and II clearly show the beneficial results of irradiation therapy in cases of essential hypertension and diabetes mellitus when applied to the pituitary and adrenal glands.

successfully treated excessive menopausal symptoms by irradiation of the pituitary. As a proof of the harmlessness of the technic used in such treatments, Borak<sup>18</sup> cites that for the past 30 years children have been treated with at least the same amount of irradiation for epilation of the hair of the head for tinea capitis, and no sign of damage to the hypophysis or brain tissue has ever been observed.

Ford,<sup>19</sup> of the Mayo Clinic, reported complete relief in seven out of 17 women with dysmenorrhea treated in this manner.

IRRADIATION THERAPY IN DISEASES OF THE THYROID GLAND

For a long time, surgery was the only acceptable form of treatment in goiter cases, and it is still to be considered of great importance. However, a better understanding

of the interrelationship of the thyroid gland to the other glands of internal secretion has explained in a measure why some patients continue to manifest goiter symptoms after surgical operation, since removal of the thyroid alone does not always affect the dysfunction of certain glands of internal secretion which may cause hyperactivity of the thyroid.

In this regard, Fulton, Schnitker, and Cutler,<sup>20</sup> of Boston, in a recent contribution on the subject, state: "It is generally agreed that subtotal thyroidectomy is, at the present time, the most dependable method of treatment for patients with toxic goiter. Yet failure to relieve symptoms by this procedure is by no means rare. It has been pointed out repeatedly that no matter how careful the selection and preoperative care of patients with toxic goiter, no matter

TABLE III

IRRADIATION THERAPY FOR MENSTRUAL DISTURBANCES CAUSED BY PITUITARY AND PRIMARY OVARIAN DEFICIENCIES

	Cases	Pronounced amenorrhea	Oligomenorrhea	Definite metorrhagia
Mozer, C., and Spitz, Mt. Sinai Hosp., Philadelphia Am. J. Obs. & Gyn., August, 1935.....	102	51	21	13
		45 % responded favorably	6, or 28 %, conceived soon after treatment, remaining 8 were cured	80 % responded to treatment

TABLE IV

IRRADIATION IN CASES OF AMENORRHEA

	Cases	Menst. restored	Conceived	Went to term	Physical deformities in children
Kaplan, I., Director, N. Y. Cancer Inst., N. J. State J. Med., April, 1938.....	131	79	44	38	0

EFFECT OF IRRADIATION OF PITUITARY IN DYSMENORRHEA

	Cases	Amelioration
Newell, R. R., and Pettit, A. V., Stanford. Radiology, October, 1935.....	56	35 or 67 %

TABLE V

IRRADIATION OF PITUITARY GLAND IN TREATMENT OF MENOPAUSAL SYMPTOMS

	Cases	Responded to treatment
Collins, C., Thomas, E. P., Menville, L. J., New Orleans, Tulane Med. Clin.....	109	85 %

TREATMENT OF PITUITARY GLAND FOR MENOPAUSAL DISTURBANCES

	Cases	Improved
Borak, J., Vienna, München.med. Wehnschr., 1924.....	274	80 %

The good results obtained in menstrual and menopausal disturbances are shown in tables III, IV, and V respectively.

how skillful their surgeon, or how radical their surgery, no matter how careful their treatment following thyroidectomy, a certain number of patients will either continue to manifest hyperthyroidism, or, after an interval of essentially normal health, will have the condition recur."

The incidence in which this happens varies considerably in different clinics. Thompson, Morris, and Thompson<sup>21</sup> in 1931, published a comprehensive review of the subject in which they revealed that among the different series reported in the literature, the incidence ranges from 0.25 to 25 per cent.

There are experimental and clinical observations to support this belief. Emmanuel Momigliano, of the University of Rome, reports that roentgen therapy over the thyroid of rabbits produced marked changes in their ovaries. He states that while these observations in rabbits following intensive doses of irradiation should not be directly applied to humans, they explain the known clinical fact that ovarian function can be stimulated by roentgen ray treatment of the thyroid. Then again, according to Coret, the disturbances of menstruation, oligomenorrhea, and amenorrhea as found in exophthalmic goiter are explained as direct response to thyroid dysfunction.

And further, R. J. Schachter,<sup>22</sup> of the University of Chicago, states: "Shapiro and Marine<sup>23</sup> reported that the symptoms of hyperthyroidism were alleviated in a patient with Graves' disease, upon the eating of raw desiccated adrenal tissue. From their observations, Marine concluded that decrease in adrenal cortical secretion may be a factor in causing hyperthyroidism."

An interesting report by Crotti is found in Jackson's<sup>24</sup> book, "Goiter and Other Diseases of the Thyroid Gland." Crotti believes that "there undoubtedly exists an interrelation between the thyroid, the pancreas, and the adrenals. The adrenals and thyroid are reciprocally stimulating; the thyroid and pancreas inhibit each other, while the pancreas and the adrenals are antagonistic." Crotti adds that "a close rela-

tionship exists between hyperplasia of the thymus and thyroid, and this view has been reported also by Virchow, Gluck, Wiens, Wever, Kaufman, Rossle, Hart, Halsted, and others. After thymectomy in animals, the thymus gland tends to become hyperplastic as in Graves' disease, and, likewise, following thyroidectomy the thyroid becomes hyperplastic." This fact, Crotti thinks "is of great importance since it explains why, after an operation for goiter, it may be necessary to deal with mechanical as well as functional disturbances due to an increased thymic hyperplasia."

Pohle,<sup>25</sup> of the University of Wisconsin, says: "The roentgen therapist finds at least an explanation for the beneficial results of roentgen irradiation of the suprarenal region for toxic parenchymatous thyroid gland. When the direct treatment over the thyroid gland has failed to show improvement in the patient's condition, a beneficial influence is observed by irradiating an existing suprarenal adenoma. Another explanation of the beneficial effects of roentgen irradiation on the suprarenal glands, practiced particularly by the Belgian and French roentgenologists, is advanced in Crile's<sup>26</sup> report of denervation of the adrenal glands for neurocirculatory asthenia." The patient upon whom Crile<sup>27</sup> operated for neurocirculatory asthenia lost all symptoms of hyperthyroidism after the denervation of the adrenal glands. Pohle goes on to say: "Even if one is able to make such a diagnosis, is the surgeon justified in performing denervation of the adrenal glands while the sympathetic nervous plexus and the endocrine glands seem to be in a state of hyperactivity? Roentgen therapy over this region can produce a similar effect on the sympathetic nerves and ganglia and should be tried before such an operation is suggested."

Irradiation therapy has been used in goiter cases with decompensated hearts and has been productive of excellent results. Pellegrini and Guiseppe, of the University of Pavia, state: "In many cases, a state of compensation is obtained and lasts as long as the cardiovascular apparatus is not

TABLE VI

RESULTS OF POSTOPERATIVE RECURRENCES TREATED WITH X-RAYS				
	Cases	Cured	Improved	Unimproved
Perry, S. Paul., Chicago, Ill., Radiology, 1935.....	17	76%	6%	18%

## TREATMENT OF HYPERTHYROIDISM BY IRRADIATION OF PITUITARY GLAND

	Cases	Satisfactory results	Cases previous irradiation to thyroid failed	9 of 12 thyroid failures successfully treated over pituitary
Borak, J., Vienna, Radiology, May, 1935.....	16	62.5%	12	75%

Table VI shows the results obtained in postoperative recurrences when treated by irradiation therapy and cases of goiter cured by only treating the pituitary gland.

subjected to considerable damages. It is indicated and gives good results in all cases in which digitalis treatment is ineffective and contraindicated, as in bradycardia, block, etc. In these cases, roentgen treatment presents an absolute indication and not only gave brilliant results but may change the physiopathologic condition of decompensation to the point of rendering the patient sensitive to the action of the cardiac tonics."

Direct application of irradiation therapy has been used for a number of years in the treatment of goiter cases with good results. It is unnecessary to expatiate at this time upon the beneficial results obtained by this form of therapy, since so much has already been written regarding this subject.

It is interesting to note that the surgical profession is now giving irradiation therapy its proper place in the treatment of

goiter. We find that Hugh Poate,<sup>28</sup> a noted goiter surgeon of Sydney, Australia, recently stated: "In some of the very acute goiter cases, I advise deep x-ray treatment to the pituitary, as I rather feel that a big part may be played in these cases by the thyrotrophic hormones of the anterior lobe of the pituitary glands. An interesting example of a man with acromegalia developed an acute thyrotoxicosis and goiter. His basal metabolic rate was plus 64 per cent. He was cured of his intercurrent malady by deep x-ray to the pituitary gland only. Personally, I favor deep x-ray therapy and find it a valuable adjunct to surgery in the treatment of severe or secondary Graves' disease."

The following tables are ample proof of the good results obtained by direct irradiation therapy in goiter when used by experienced radiologists.

TABLE VII

RESULTS OF IRRADIATION THERAPY IN EXOPHTHALMIC GOITER		
	Cases	Good results
Jenkinson, E. Hunter, St. Luke's Hosp., Chicago, Surg. Gynec. Obst., March, 1938....	400	80%

## RESULTS OF IRRADIATION THERAPY IN GOITER

	Cases	Cured	Improved	Unimproved	Recurrences	Previous operation	Postoperative cures
Groover and Christie, Washington, D. C., Radiology, March, 1934.....	252	80.15%	15.47%	4.38%	1.19%	16 or 6.35%	12 or 75%

TABLE VIII

## ROENTGEN THERAPY IN 100 CASES OF EXOPHTHALMIC GOITER

	Cases	In good health more than five years
Gunsctt—Seeger, Ritter and Schneider, Strasbourg, J. de radiol. et d'électrol., December, 1935.....	100	74%

## ROENTGEN RAY TREATMENT IN GOITER

	Cases	Cured	Improved	Recurrences
Williams, Alden H., Grand Rapids, Mich. Radiology, March, 1932.....	200	80.5%	13.5%	4%

## SUMMARY

Radiation therapy has proved itself to be valuable in the treatment of certain dysfunction of the glands of internal secretion. This is evidenced by good results obtained in cases of essential hypertension, hyperglycemia, some cases of goiters and menstrual and menopausal disturbances when the pituitary gland, adrenals and ovaries are irradiated.

The good results obtained by this form of therapy are the result of experimental evidence and clinical observation, and, in certain cases, it has proved more effective than the hormones themselves.

## REFERENCES

1. Lawrence, John H., Nelson, Warren O., and Wilson, Hugh: Roentgen irradiation of the hypophysis, *Radiology*, 29:446, 1937.
2. Lacassagne, A.: Über den Einfluss von Hypophysenbestrahlungen (mit Radonspickung oder Röntgenstrahlen) auf das Ovarium, *Strahlentherapie*, 54:477, 1935.
3. Biedl and Aschner: Cited by F. Roberts in Principles and Practice of X-ray Therapy, H. K. Lewis & Co., London, 1936.
4. Gellar: Cited by F. Roberts in Principles and Practice of X-ray Therapy, H. K. Lewis & Co., London, 1936.
5. Dixon and Marshall: Cited by F. Roberts in Principles and Practice of X-ray Therapy, H. K. Lewis & Co., London, 1936.
6. Tierney and Engelbach: Cited by Arnold S. Jackson in Goiter and Other Diseases of the Thyroid Gland, Paul B. Hoeber, New York, 1926.
7. Seligman, Bernard: Epilepsy associated with pituitary disturbance: Response to x-ray therapy, *Radiology*, 29:723, 1937.
8. Cottenot, P. H.: Rayons X sur les Glandes Surrénales, Paris, Thesis, 1913.
9. Frey, Hans: Experimentelle Untersuchungen über die Röntgensensibilität der Nebennieren, *Acta Radiol.*, 9:23, 1928.
10. Pozzi, A.: Blood pressure and blood calcium after irradiation of suprarenals, *Policlinico (sez. med.)*, 32:503, 1925.
11. Stephen, R.: Function of the cortex suprarenals, *München. med. Wehnschr.*, 69:339, 1922.
12. Gouin, J., and Bienvenu, A.: De l'influence des radiothérapies sympathiques sur la leucocytose, *Bull. méd. Paris*, 42:1253, 1928; 42:1335, 1928.

13. Zimmern, A., and Cottenot, P.: Les effets de l'irradiation des glandes surrénales en physiologie et en thérapeutique, *Compt. rend. Acad. d. sc.*, 154, 1912.

14. Langeron, L., Desplats, R., and Béra, J.: Documents cliniques concernant l'action de la radiothérapie de la région surrénale dans le traitement du diabète sucré, *Presse méd.*, 39:1709, 1931.

15. Desplats, R.: Functional neuroglandular radiotherapy, especially of the region of suprarenal capsules, *Am. J. Phys. Ther.*, 8:267, 1932.

16. Zimmern, A., Chavany, J. A., and Brunet: Radiothérapie surrénale et goitre exophtalmique: Apropos d'un premier cas traité par cette méthode après échec de la radiothérapie thyroïdienne, *Bull. et mem. Soc. de radiol. méd. de France*, 20:201, 1932.

17. Werner: Cited by Borak in Treatment of Climacteric Disturbances, *München, med. Wehnschr.*, 71:864, 1924.

18. Borak, J.: Treatment of climacteric disturbances, *München, med. Wehnschr.*, 71:864, 1924.

19. Ford, F. A.: Treatment by roentgen rays in ovarian dysfunction, *Minnesota Med.*, 13:186, 1930.

20. Fulton, M. N., Schnitker, M. A., and Cutler, E. C.: Recurrent and persistent thyrotoxicosis following thyroidectomy, *West. J. Surg.*, 46:619, 1938.

21. Thompson, W. O., Morris, A. E., and Thompson, P. K.: Thyrotoxicosis following total thyroidectomy for exophtalmic goiter, *Arch. Int. Med.*, 46:946, 1930.

22. Schachter, R. J.: The effect of adrenal cortical extract on experimental hyperthyroidism in dogs, *Proc. Soc. Exper. Biol. & Med.*, 40:409, 1938.

23. Shapiro and Marine: Cited by R. J. Schachter in: The effect of adrenal cortical extract on experimental hyperthyroidism in dogs, *Proc. Soc. Exper. Biol. and Med.*, 40:409, 1938.

24. Jackson, Arnold S.: Goiter and Other Diseases of the Thyroid Gland, Paul B. Hoeber, New York, 1926.

25. Pohle, Ernest A.: Clinical Roentgen Therapy (ed.), Lea & Febiger, Philadelphia, 1938.

26. Crile, G. W.: Denervation of adrenal glands for neurocirculatory asthenia: Technic and clinical results, *Surg., Gynec. & Obst.*, 54:294, 1932.

27. Idem: Recurrent hyperthyroidism, neurocirculatory asthenia, and peptic ulcer: Treatment by operations on suprarenal-sympathetic system, *Trans. Sect. Surg., Gynec. & Abd., A. M. A.*, pp. 247-251, 1931.

28. Poate, Hugh R. G.: The present position of surgery of the thyroid, *Med. J. Australia*, 2:635, 1938.

## DISCUSSION

Dr. D. A. Huckabay (Shreveport): I want to ask Dr. Menville a question. From a clinical standpoint, what results have you had with irradiation of the pituitary gland in diabetes insipidus?

Dr. Sidney M. Copland (New Orleans): In reference to roentgen irradiation of the thyroid gland in hyperthyroidism, I think it is very important that the surgeon's point of view be expressed. We have



been familiar with roentgen irradiation of the thyroid for many years and yet it is far from accepted, most probably for good reason. We know that persons exposed to x-ray come to surgery and when they do, the technical procedure is more difficult on the patient, for added manipulation by the surgeon in overcoming adhesions causes more absorption of the thyroid toxin by the patient.

Many years ago it was demonstrated that a thyrocardiac patient, even in auricular fibrillation, can be submitted to extensive thyroid surgery. It is possible to need x-ray at times as an aid in cooling off iodine-fast hyperthyroid patients so as to prepare them for surgery. Some two years ago, George Crile, Jr. again brought attention to this fact. However x-ray does not cause a permanent cure for we see too many persons exposed to x-ray undergo a remission only to suffer a recurrence. Hyperthyroidism is a surgical disease.

Dr. Courtland P. Gray, Sr. (Monroe): What I have to say is not quite in line with this paper as it refers particularly to the thyroid and I wish to ask Drs. Ané and Menville what their experience has been in similar cases.

Some twelve years ago the State Society met in Monroe. At that meeting Dr. Mayo was present, so I asked him to see a woman with a toxic thyroid, one of the worst that I have ever seen. She had a very large goiter, filling the entire neck, from her chin to the clavicle; her eyes were bulging.

Thinking that Dr. Mayo might be of some assistance to this woman, I had him see her. He advised operation only and, inasmuch as the people were in moderate circumstance, he offered to do the operation without pay provided she would pay her fare to and from Rochester. A few days after Dr. Mayo left Monroe, it seemed that this woman would die. I mentioned the case to Dr. Moore, who is the roentgenologist at the St. Francis Sanitarium and on his advice I took the patient to the sanitarium and Dr. Moore administered x-ray therapy. That has been about twelve years ago.

Today the woman is apparently normal. There is no tachycardia, no bulging of the eyes and on examination you can scarcely determine any enlargement whatsoever of the thyroid. She has delivered, since that time, two normal babies and is apparently a well woman. I would like to know Dr. Menville's experience with similar cases.

Dr. Stakely F. Hatchette (Lake Charles): It seems we radiologists are again having little differences of opinion on certain points with surgeons. What I am talking about now relates to the thyroid gland. If I remember correctly, and I believe I do, in the past two years I have heard several men, whom I consider outstanding surgeons, make the statement that they felt approximately 80 per cent of the hyperthyroid cases could either be cured or benefited by irradiation therapy. They feel that irradiation should be tried first and that in the approximately 20 per cent of the cases in which it fails, surgery should then be done. There

has been ample experimental evidence to prove that irradiation does not cause too much in the way of difficulty for the surgeon. It may cause, perhaps, some fibrosis and may make operation a little more difficult but any surgeon who calls himself a surgeon is willing to accept the increased difficulty in operation if he can offer his patient a better prognosis. The mortality in irradiation therapy is practically nil. I believe the mortality rate in surgery still runs rather high.

Dr. L. J. Menville (In conclusion): In answer to the question regarding my experience in treating diabetes insipidus, I have had no experience in the irradiation therapy of this disease.

The statement made by the doctor who has experienced difficulty in operating goiter cases previously irradiated is not an uncommon criticism of this method of treatment. I am sure that all goiter surgeons of experience at times have found the same difficulty in goiter cases which had never been irradiated. In such instances, the thyroid gland had been subjected to certain inflammatory changes (thyroiditis) which resulted in adhesions. Thyroiditis may be acute, subacute, and chronic. The otolaryngologist in a similar manner finds, at times, the removal of tonsils somewhat difficult due to adhesions from chronic inflammatory changes, yet these patients had not received any irradiation therapy. It should be remembered that in many instances an operation is made easy or difficult depending upon the skill and experience of the operator.

Dr. C. P. Gray, a surgeon, has just told us of a toxic goiter patient with cardiac complications, who was cured by irradiation therapy. His experience is like that of a large number of physicians, who, in selected cases, have witnessed the beneficial results of irradiation therapy in similar cases.

Dr. Hatchette has clearly brought out the usefulness and good results obtained with irradiation therapy in goiter cases, all of which I am in perfect agreement with the doctor.

---

### SULFANILAMIDE AND FEVER THERAPY IN THE TREATMENT OF VENEREAL LYMPHOGRANULOMA\*

J. A. TRAUTMAN, M. D.†

AND

H. A. THOMASON, M. D.†

NEW ORLEANS

Venereal lymphogranuloma is a disease which is not considered to have a grave

---

\*Read before the joint clinical meeting of the Orleans Parish Medical Society and the United States Marine Hospital Staff, June 26, 1939.

†From the United States Marine Hospital, New Orleans.

prognosis, but as stated by Frei,<sup>1</sup> it does extend over a period of several months, sometimes only for a few weeks, and then again it may persist for several years. A fatal termination is rare. All who have observed and treated this venereal disease, known also as lymphogranuloma inguinale, lymphogranuloma venereum, lymphopathia venereum, and other names, must agree that the treatment is tedious, most often covers a considerable period of time, and frequently is very discouraging to the patient as well as to the attending physician. The disease may well be classified as a "catastrophe" illness because of the long period of disability resulting in many instances. The resulting economic loss, therefore, is rather extensive to employee and employer and to the public who shoulder the expense of care for the indigent patients.

#### THERAPEUTIC METHODS

Up to the present time many methods of therapy have been used in venereal lymphogranuloma. These procedures not only have been numerous, but each has been applied in many ways. On the face of this alone one must conclude that there is no agreement as to what constitutes adequate treatment, and secondly, that ample room for improvement in therapy exists. Since these conditions existed, it naturally followed that newer forms of treatment would be applied to this disease. At the Marine Hospital, we have applied two of these; namely, fever therapy as induced by fever cabinets, and sulfanilamide. This paper will be confined to a discussion of the therapy in venereal lymphogranuloma and no effort will be made to discuss the etiology, symptoms, physical findings, diagnosis, differential diagnosis, pathology, history and the like. Recent papers and textbooks published by Frei,<sup>1</sup> Arnold and Knight,<sup>2</sup> Anderson and Harmos,<sup>3</sup> Wien,<sup>4</sup> Pasternack,<sup>5</sup> Knight,<sup>6</sup> von Haam and Lichtenstein,<sup>7</sup> D'Aunoy and von Haam<sup>8</sup> and others have well described the various phases of venereal lymphogranuloma and repetition is therefore not made here.

#### FEVER THERAPY

Very few reports appear in the literature relative to fever therapy and sulfanilamide in the treatment of venereal lymphogranuloma. However, some very interesting observations have been reported in the few papers found in literature. Tauber and Squires<sup>9</sup> treated nine patients, using fever therapy as induced by the Kettering hypertherm. The total hours of fever given ranged from three to 23 1/3 hours, the average being 14.44 hours per patient; the average number of treatments was 4.1 and the average hours of each fever session was 3.5. The results were as follows: Six patients improved, one moderately improved, and two slightly improved. Shrop-shear<sup>10</sup> used sulfanilamide in the treatment of a case complicated by rectal stricture and improvement resulted. Hamilton<sup>11</sup> treated 15 patients, using sulfanilamide, grains 80 for two days, grains 60 for three days and grains 40 for four to eight days. All patients responded with the exception of one and he responded on further use of the drug. Schaffer and Arnold<sup>12</sup> treated 22 patients with venereal lymphogranuloma with sulfanilamide; twelve were treated with sulfanilamide alone and in ten sulfanilamide was given after other measures had failed. The dosage of sulfanilamide was 40 grains daily for three days, 30 grains daily for three days and 20 grains daily for one to two months. The results were as follows: In the first group of 12 patients, three were cured; five improved; two unimproved, and two results unknown. In the second group of ten patients, one was cured; six were improved; one unimproved and two results unknown. Land<sup>13</sup> reports on one patient having a broken down bubo to whom sulfanilamide was given for two weeks. In addition, the necrotic tissue was excised and packs of glycerine and magnesium sulphate were used daily. Recovery occurred in 32 days. Peryassu<sup>14</sup> found that sulfanilamide therapy induced recovery but he does not specify the number of patients treated. The entire treatment consisted of six tablets daily (amount in grains not stated but probably 30 grains daily) until 180

tablets had been given. Two or three courses of the drug were given with 15 days of rest between courses. He stated that sulfanilamide alone is indicated early in the development of venereal lymphogranuloma and before the appearance of the fistula. Adjunct treatments for the later cases consisted of roentgen rays and intravenous iodide or antimony preparations.

Early in 1938 we had applied fever therapy with good results to four patients having venereal lymphogranuloma. At that time we learned that Captain Hamilton, under the direction of Colonel Qualls<sup>15</sup> at Fort Benning, Georgia, was using sulfanilamide with success in this disease. We promptly began to use this drug routinely on all new cases of venereal lymphogranuloma coming to this hospital, and because of the apparently good results we have continued its use up to the present time. Fever therapy was reserved for those patients who did not respond to sulfanilamide, or for those who did not tolerate the drug.

#### DETAILED TECHNIC OF TREATMENT

Before proceeding to the results of treatment, an outline of our therapeutic procedures in venereal lymphogranuloma will be given. The outline is as follows:

1. Bed rest in all cases.

2. Sulfanilamide—grains 20 four times daily for two days; grains 15 four times daily for three days; grains 10 four times daily for eight days.

If the condition has subsided by this time 5 grains of sulfanilamide are given four times daily for ten days to lessen the possibility of recurrence. However, if the condition has not subsided by the end of the thirteenth day of sulfanilamide therapy, a five day rest period is given and the course repeated, followed by the 20 grain dosage daily for ten days if apparent recovery has resulted. Fever therapy is given to patients who have not responded to two courses of sulfanilamide or to those who react unfavorably to the drug.

3. Sodium bicarbonate, grains 30 three times daily, is given during the period of sulfanilamide therapy.

4. Fluids are limited to 1200 c. c. daily.

5. If areas of fluctuation are present before therapy is begun, or develop during treatment, aspiration with needle and syringe should be performed. Incisions are to be avoided if at all possible.

6. Fever therapy: We have used an air-conditioned cabinet to induce fever. These fever sessions are given at intervals of two to three days, with fever at levels of 105-106° F. for five hours. A few sessions have been given at 106-107° F. for five hours, but it is believed that fever at 105-106° F. is sufficiently high to obtain the desired results. The treatments should be given at the stated intervals until the disease has apparently subsided. However, it is our opinion that if adequate improvement has not been obtained after ten fever sessions, fever therapy should be discontinued.

7. Excision of glands should be performed on patients not responding to sulfanilamide or fever therapy. Since we have been using sulfanilamide and fever therapy it has been unnecessary to resort to this procedure because of the failure of these two newer forms of therapy.

#### RESPONSE TO THERAPY

In October, 1938, we<sup>16</sup> reported good results in 16 patients with venereal lymphogranuloma who had received fever therapy or sulfanilamide. Our series now has increased to 36 cases. The duration of the glandular involvement before treatment was begun ranged from six days to 139 days, the average duration being 35.6 days. In 32 cases the duration was less than two months and in only four was the duration more than two months. Thus it is noted that we are dealing here with the more acute type of the condition. The men presented for treatment varied from those with mild inguinal gland involvement to the more severe types with marked pain and swelling of inguinal glands with discoloration of overlying skin and draining sinuses. Spontaneous rupture of the involved areas had occurred in seven cases; in three, a small incision had been made before reporting to this hospital, and in two a small incision was made into the fluctuating area after

admission to the hospital. In three cases aspiration of the fluctuating area was performed before, or during sulfanilamide or fever therapy. Seven patients presented bilateral involvement of the inguinal glands.

In this group of 36 cases four patients received fever therapy alone, 29 sulfanilamide alone, and three a combination of sulfanilamide and fever therapy. As a rule, response was prompt with progressive decrease in pain and swelling of the involved glands, and closure of the draining areas.

It is difficult to include one case of venereal lymphogranuloma in any one specific group because of the various forms of therapy used and because of the difficulty in obtaining cooperation from the patient. This patient developed right inguinal glandular involvement in November, 1937, and during the latter part of the same month excision of these glands was performed at another hospital. Following discharge from the hospital he again developed rather extensive involvement on the same side with draining sinus. At this time he reported to us for treatment, and we decided to give him fever therapy. Between March 19, 1938 and April 11, 1938, he received seven fever sessions at 105-106° F. for five hours. The glands had subsided to about four-fifths of the size present on admission and the draining sinus had closed. The patient decided that he was well enough to go to work despite the fact that we had advised him to continue treatment. He worked for 18 days and then decided that he was in error, and returned for further treatment. On this occasion sulfanilamide was used and gradual decrease in the size of the glands was noted. However, after 13 days of treatment a slight enlargement of the glands remained. A five day rest period was prescribed, followed by another course of sulfanilamide. After 12 days of the second course, the glands had returned to normal. He was discharged, fit for duty, on June 6, 1938. The patient has been seen as late as June 1, 1939, and has had no recurrence of the condition. Throughout the course of sulfanilamide therapy, and between fever sessions it was impossible to keep the patient at bed rest.

Excluding this one case, therefore, the results in the remaining 35 cases were as follows: Thirty-four attained apparent recovery in an average of 17.4 days and were discharged as fit for duty at the end of that time. One patient was markedly improved but still had slight painless swelling of the inguinal glands after 27 days. This patient received sulfanilamide for nine days, following which he developed a generalized maculo-papular dermatitis. The dermatitis disappeared in a few days. Sulfanilamide was begun again 16 days following the onset of the reaction and after one dose of 20 grains the dermatitis recurred. Fever therapy was then attempted but the patient refused to continue the treatment after being in the cabinet for not more than one hour. The highest fever reached was 104° F. Despite the complications of treatment he had shown marked improvement but we have been unable to see this patient since discharge and we do not know his final results. In one of the sulfanilamide group the patient left the hospital before his course of treatment was completed. He was markedly improved but still had some glandular enlargement. After a period of about three months he returned and received adequate sulfanilamide therapy with prompt relief of all signs of the disease. Only three patients were hospitalized for a period longer than 30 days, one for 32 days, one for 33 days and one for 40 days. For the entire group of 35 cases the average hospitalization was 17.6 days. In four patients receiving fever therapy, the average hospitalization was 21.2 days. In the two patients who had fever therapy and sulfanilamide, the average hospitalization was 29.5 days. Fever therapy was used in the latter two patients because of reactions to sulfanilamide. The average hospitalization for the 29 patients receiving sulfanilamide alone was 16.3 days. For the entire group of seven patients who received fever therapy an average of five fever sessions was necessary, or a total of 25 hours of fever at a level of 105-106° F. We have been rather fortunate in the follow-up on our cases and up to the present no recurrences have occurred.

COMPARISON WITH OTHER FORMS OF THERAPY

In order that we can best evaluate the results herein it is necessary to compare the results of sulfanilamide and fever therapy with other forms of therapy used in this hospital. We have reviewed 59 consecutive patients treated here just prior to the beginning of the use of sulfanilamide and fever therapy for comparison of duration of the disease before and after treatment was begun. Excision of glands was done in 45 patients. The average duration of glandular involvement before operation was 39.1 days in this group as compared to 35.6 days before treatment was begun in the fever and sulfanilamide group. The average duration of the condition after operation until the operative wound was healed or until the wound was sufficiently healed to permit discharge from the hospital and return to duty was 43.2 days, as compared to 17.6 days' duration of the condition after treatment was begun in the 35 patients receiving fever therapy and sulfanilamide. In addition, in the group having excision of glands done, three later developed swelling of the lower extremity. One patient, however, was not seen here until after the swelling had subsided. This latter patient developed the condition on the way to Europe and was treated for a few weeks in Antwerp, Belgium. The exact cause, therefore, was not determined, although there is a likelihood that, after he had resumed work as a merchant seaman, swelling of the lower extremity developed, and this was probably a complication following excision of glands. The period of disability in these three patients was not included in our averages of duration of condition after operation.

In 14 patients receiving other types of therapy, such as local heat, incision and drainage, wet compresses, tartar emetic, pressure bandages, bed rest, and the like, the average duration of the glandular involvement was 19.8 days before treatment was begun. The average duration of the disease after treatment began was 39.6 days. This group of 14 cases was generally of the milder type of venereal lymphogranuloma. It is likely that if excision of glands

had been performed on all of the milder cases on admission that the average hospitalization may have been slightly less than the 43.2 days reported for the group in which excision was performed.

All patients with venereal lymphogranuloma reported herein were males. This includes not only the 36 cases in the sulfanilamide and fever group but also the 59 patients who received other forms of therapy.

AVERAGE DURATION OF VENEREAL LYMPHOGRANULOMA BEFORE AND AFTER TREATMENT WAS BEGUN<sup>1</sup>

Type of therapy	Number of cases	Duration before treatment began	Duration after treatment began
Fever therapy or sulfanilamide.....	36	35.6	17.6 days (in 35 cases) <sup>2, 3</sup>
Conservative treatment.....	14	19.8 days	39.6 days
Excision of glands....	45	39.1 days	43.2 days

<sup>1</sup>The average duration after treatment began indicates the time in which condition had subsided and patient was discharged as fit for duty; in the operative cases the time in which the wound had healed or was healed sufficiently to permit discharge from the hospital as fit for duty.

<sup>2</sup>One case is not included because of lack of cooperation in treatment. Refer to case report. Final results were excellent in this case.

<sup>3</sup>Includes one case with marked improvement.

SUMMARY

1. Fever therapy and sulfanilamide apparently were effective therapeutic agents in 36 cases of venereal lymphogranuloma having an average duration of 35.6 days before treatment was started.

2. The period of disability was much shorter in patients treated with therapeutic fever and sulfanilamide than it was for other types of therapy used at this hospital.

3. Sulfanilamide is preferred to fever therapy because of greater ease of administration and because of the low cost of the former as compared to the rather high cost of the latter.

4. No recurrences have occurred thus far in any of the patients considered as having had adequate sulfanilamide or fever therapy.

5. Approximately 75 per cent of patients with venereal lymphogranuloma in this hospital during 1936 and 1937 had surgical excision of glands. Excision was unnecessary in 36 consecutive patients reporting to us

for treatment under the two newer forms of therapy.

## REFERENCES

1. Frei, Wilhelm: Venereal lymphogranuloma, *J. A. M. A.*, 110:1653, 1938.
2. Arnold, R. C., and Knight, H. C.: A critical study of lymphopathia venereum with a summarized report of 90 cases, *Hospital News, U. S. P. H. S.*, 22:8, 1936.
3. Anderson, O. L., and Harnos, Oscar: Lymphopathia venereum. Treatment with diluted Frei antigen intradermally and observations on diagnosis, *Hospital News, U. S. P. H. S.*, 4:1, 1937.
4. Wien, Max: Lymphogranuloma inguinale. In *Modern Urology*, edited by Hugh Cabot, Lea and Febiger, 1936, Vol. 1, pages 230-243.
5. Pasternack, Joseph G.: The treatment of the inguinal buboes of lymphogranuloma inguinale, *Hospital News, U. S. P. H. S.*, 4:16, 1937.
6. Knight, H. C.: A clinical classification of lymphopathia venereum in the male, *Hospital News, U. S. P. H. S.*, 5:1, 1938.
7. von Haam, Emmerich, and Lichtenstein, Louis: The incidence and clinical manifestations of lymphogranuloma inguinale in New Orleans, *New Orleans Med. & Surg. J.*, 87:92, 1935.
8. D'Aunoy, R., and von Haam, E.: Virus of lymphogranuloma inguinale, *South. Med. J.*, 29:911, 1936.
9. Tauber, Elmore B., and Squires, John Brainard: Hyperpyrexia of lymphopathia venerea, *Arch. Phys. Therapy*, 19:289, 1938.
10. Shropshire, George: Sulfanilamide in treatment of strictures of the rectum caused by lymphogranuloma venereum, *Illinois Med. J.*, 74:153, 1938.
11. Hamilton, Gladen R.: Treatment of lymphogranuloma venereum with sulfanilamide, *Military Surgeon*, 83:431, 1938.
12. Shaffer, L. W., and Arnold, E.: Lymphogranuloma venereum, *Arch. Dermatol. & Syphilol.*, 38:705, 1938.
13. Land, S. M.: Treatment of lymphogranuloma venereum with sulfanilamide, *Brit. Med. J.*, 2:1043, 1938.
14. Peryassu, D.: Sulfanilamide in venereal lymphogranuloma. *Brazil-Medico, Rio de Janeiro*, 53:305, 1939. (Abstract *J. A. M. A.*, 112:2373, 1939.)
15. Personal communication from Guy L. Qualls, Colonel, Medical Corps, United States Army, Fort Benning, Georgia.
16. Trautman, J. A., and Thomason, H. A.: Sulfanilamide and fever therapy in the treatment of venereal lymphogranuloma, *Hospital News, U. S. P. H. S.*, 5:1, 1938.

## ACKNOWLEDGMENT

The excisions of glands on the cases reported in this paper were performed by Senior Surgeon Richey L. Waugh, Passed Assistant Surgeon J. A. Trautman, Passed Assistant Surgeon P. E. Walker, and Assistant Surgeon (R) R. W. Carr.

Frei tests on all of the patients reported herein were done by Passed Assistant Surgeon J. G. Pasternack.

ARTIFICIAL PNEUMOTHORAX\*  
THE TREATMENT OF AMBULATORY  
PATIENTS WITH PULMONARY  
TUBERCULOSIS\*

SYDNEY JACOBS, M. D.†

NEW ORLEANS

Myers has declared that in treating pulmonary tuberculosis, there are three objectives: To stop the disease from spreading, to restore the patient to working condition, and to render him non-infectious to others. The more closely these objectives are reached, the more successful is treatment.

## COLLAPSE THERAPY

To reach these objectives, the program of treatment must be effective. Unquestionably, collapse therapy plays an important role in such a program, having aided many patients in their struggle for health. Many have recovered without it, but only where conditions are most favorable. Without the constant attention of medical personnel trained in the vagaries of tuberculosis, patients usually mistake temporary improvement for definite recovery and resume former activities without warrant. This is the most common cause for relapse. Even in an environment favorable for healing of pulmonary lesions, there are cavities which cannot close spontaneously. In such instances, the mechanical assistance of collapse therapy has meant the difference between speedy functional recovery and prolonged disability. Certainly for the majority of patients, collapse therapy is indicated sometime in the course of the disease.

Artificial pneumothorax is by far the most popular form of collapse therapy. In suitable cases, its judicious application is followed by spectacular improvement and its unfavorable side effects are few. Unfortunately, the majority of patients are first seen when adhesions prevent the underlying lung from being collapsed ade-

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana.

quately by this method. For this reason, it can be used successfully in only about one-third of all patients, but it still represents the greatest single advance in tuberculosis therapeutics of the past half century.

Although increasingly popular, artificial pneumothorax is still used too infrequently. It may be that its benefits have not been fully appreciated or perhaps, practitioners in general have been deterred by fear that it might harm patients. Because it is seldom started except in institutions for the tuberculous, chances are missed of reducing the tuberculosis mortality significantly; so long as practitioners do not use artificial pneumothorax, just that long will patients be treated "conservatively" at home. "Conservative" treatment is unfortunately based on the wishful thinking that lesions will resolve and cavities close of their own accord, but this seldom occurs in the absence of mechanical compressive assistance. At times, patients are treated at home in the hope of having them admitted to an institution whenever facilities permit. Regardless of the cause, the fact remains that about 80 per cent of all patients admitted to institutions for the tuberculous have advanced disease. This is just another way of stating that they have lost their best chances for successful pneumothorax therapy with early return to useful existence.

It is therefore not difficult to understand why many experienced physicians consider every patient with tuberculosis a potential candidate for collapse therapy. They except only those with hopelessly advanced disease and those with early fresh lesions offering promise of spontaneous resolution. It is not at all improbable that we shall accept this viewpoint of collapsing lungs except where futile or needless.

Now, there is no question that the sanatorium gives much to the patient. It offers him an excellent education and maintains that discipline and routine conducive to recovery from tuberculosis. To a lesser degree, this can be accomplished at home, but only if an excellent form of supervision can be maintained. In most instances, this is not possible. Many patients treated at home by

"bed rest" simply will not give the type of cooperation essential for recovery. Since symptoms abate before lesions resolve or fibrose, patients and doctors may be lulled into a false sense of security, and many a patient is permitted to return to work too early, sooner or later to have relapse and exacerbation of the disease.

Granted that cooperation is essential, it follows that artificial pneumothorax is of value, not only because it mechanically compresses lesions, but also because it makes patients amenable to discipline. Many patients will not cooperate long enough to obtain healing unless required to report regularly to a physician for "refills." Many of the ill-effects of chronic pulmonary tuberculosis can be avoided once the "patient-control" of artificial pneumothorax is begun. Where cavities will not close unless mechanically compressed, a patient is safer with a collapsed lung amid a poor environment than with an expanded, cavity-bearing viscus.

The use of artificial pneumothorax ought to be more widely encouraged, even among those without access to the larger institutions. We need not debate the relative merits of sanatorium and dispensary care here. Pulmonary tuberculosis is a disease of protean manifestation, affecting people of varying temperament; its treatment should be highly individualized, and the practitioner must decide where his patient is to be treated. If we accept the three objectives as goals to be attained, we realize that the really important thing is to decide under which plan the patient stands the best chance of having his disease arrested, of becoming non-infectious, and of leading a useful life once again.

For most patients, such a choice is purely academic. They cannot afford the prolonged and costly treatment of private sanatoria and must enter public institutions if they are to be given hospital care. Because so few of them can obtain beds in such institutions, the great majority are treated at home with or without capable medical supervision. In 1937, 1410 people died from pulmonary tuberculosis in Louisiana. Our

total bed capacity for the tuberculous is exactly 770; therefore, we have enough beds to accommodate only one-half of those who died of the disease, making no allowance for the many thousands more who are in need of treatment. It is perfectly obvious that something else must be done. Granted that provision of more beds is essential, years would elapse before the required number of beds is provided even if actual construction of additional facilities were begun tomorrow, and we are far from this point yet. Before the proper number of beds is furnished, hundreds of people with disease originally minimal will progress to a fatal termination while waiting for a chance to enter a hospital.

Something else must be done. A positive step would consist in establishing "collapse clinics" where patients receive artificial pneumothorax without prolonged hospital stay. The idea is not new. First employed about 40 years ago in Chicago by Frederick Tice and John B. Murphy, it still functions successfully there. Myers, in Minneapolis, and Morales and Pastor, of Puerto Rico, have recently announced their results in similar programs. Myers reports a series of 375 patients treated in his clinic; 239 of them had strictly unilateral disease, and in no one of them did the disease process spread to the uninvolved lung while treatment was in progress. About one-half of them were given a preliminary period of bed rest for three months, but the results were no better than among those for whom the entire procedure was conducted on an ambulatory basis. Morales and Pastor state that their program, begun in 1935, had, after three years, been applied to 3,824 patients of whom about 33 per cent were successfully treated.

In comparison with the foregoing, the series to be reported is exceedingly small because it represents studies on only 45 patients followed over periods varying from four months to two and a half years. It is the first attempt to employ such a plan in this state and is herein reported in the hope that it may stimulate practitioners elsewhere to use similar programs in their own

communities. Devised specifically for clinic patients, its principles are applicable to private practice. Any practitioner with sufficient knowledge of the limitations of this plan and the facilities required may use it as successfully in his office, as in the clinic.

#### CLASSIFICATION OF PATIENTS

The patients were classified according to the standards of the National Tuberculosis Association (table I). It will be noted that there were more advanced cases among negroes than among the white patients; this is to be expected. Treatment is considered successful only when patients have retrogression of their lesions, have been restored to working condition, and their sputum contains no acid-fast bacilli. In Table II, it will be seen that 42 per cent of our patients fulfilled such criteria. Because the series is too small for statistical treatment, no further analysis is made according to the stage. These data are summarized in Table III. Perhaps it is well to attract attention to the fact that the nine minimal cases among the improved group had progressive disease even with benefit of complete bed rest.

TABLE I  
Improved Unimproved Worse Dead

	Improved	Unimproved	Worse	Dead
Minimal				
White .... 6	6	0	0	0
Negro .... 4	2	1	0	1
—	—	—	—	—
Total ..10	8	1	0	1
Moderately Advanced				
White .... 6	5	1	0	0
Negro .... 6	2	0	2	2
—	—	—	—	—
Total ..12	7	1	2	2
Far Advanced				
White .... 5	0	1	2	2
Negro ....18	5	2	5	6
—	—	—	—	—
Total ..23	5	3	7	8

TABLE II  
SUMMARY

Total patients treated.....	45
White .....	17
Negro .....	28
Successful Results.....	19 (42%)
White .....	9
Negro .....	10
Unsuccessful Results.....	18 (40%)
White .....	5
Negro .....	13
Data Incomplete.....	8 (18%)
White .....	3
Negro .....	5



TABLE III  
SUCCESSFUL CASES

Case	Sputum		Involvement	Collapse	
	Before	After		Effective	Working
O. O.	+	—	F. A.-Un.-Cav.	Yes	Yes
H. W.	—	—	Minimal-Un.	Yes	Yes
A. R.	+	—	M. A.-Bil.-Cav.	Yes	Yes
J. L.	+	—	M. A.-Un.-Cav.	Yes	Yes
G. E.	+	—	M. A.-Un.-Cav.	Yes	Yes
R. C.	+	—	M. A.-Un.-Fib.	Yes	Yes
V. A.	—	—	Minimal-Contact	Yes	Yes
O. L.	—	—	Minimal-Contact	Yes	Yes
A. L. C.	—	—	Chronic Minimal	Yes	Yes
M. W.	+	—	M. A.-Un.-Cav.	Yes	Yes
L. M.	+	—	M. A.-Un.-Cav.	Yes	Yes
E. S.	+	—	M. A.-Bil.-Cav.	Yes	Yes
L. B.	+	—	F. A.-Un.-Cav.	Yes	Yes
V. B.	+	—	F. A.-Bil.-Cav.	Yes	Yes
M. B. H.	+	—	M. A.-Un.-Cav.	Yes	Yes
H. I.	+	—	M. A.-Un.-Cav.	No	Yes
H. J.	+	—	Minimal-Un.-Fib.	Yes—preg.	Yes
V. M.	+	—	F. A.-Bil.-Cav.	Yes	Yes
T. J.	+	—	F. A.-Un.-Cav.	Yes	Yes

Legend: M. A.=moderately advanced; F. A.=far advanced; Cav.=cavity; Un.=unilateral; Bil.=bilateral; Fib.=fibrotic; Preg.=pregnancy successfully conducted while pneumothorax in progress.

Since it has been customary to defer pneumothorax for patients with early or minimal disease, some may question the necessity for inducing artificial pneumothorax on such patients. It is generally believed that they will recover without compressive therapy, but Turner and Collins, working with a similar group of patients, have shown the value of inducing pneumothorax before adhesions make this impossible. Myers has commented on the harmfulness of the policy of "watchful waiting" because often this is tantamount to procrastination while the disease progresses. That minimal disease may progress rapidly if collapse is not induced is well illustrated by an experience in our negro service.

CASE REPORTS

H. J. and M. J. were two 21 year old negro girls whose diagnoses were made during the course of a routine survey upon apparently healthy individuals. At that time, their lesions were minimal and not greatly different in location, appearance or extent. Both had acid-fast bacilli in the sputum. In the former, artificial pneumothorax was successfully induced and maintained for a period of one year, during which time she was delivered of a normal child. Subsequently, spontaneous re-expansion of the lung occurred, terminating pneumothorax therapy. She has been examined repeatedly over a period of about one year and her disease has not become active despite the fact that she has been engaging in full work at home. Her child has thus far escaped infection which is indirect testimony to

the recovery of the mother. The second patient was not suitable for artificial pneumothorax; several attempts were made but adhesions permitted the creation of only a small, ineffectual pocket. She was advised that more drastic measures were needed but rejected the idea of hospitalization. She did not take strict bed rest at home because she felt well and could not appreciate the necessity for restricting her activities. When symptoms began, she reported irregularly to the clinic; soon a marked spread of the lesions in both lungs was noted. At this time, it was not possible to provide hospital facilities for her, and 16 months after the diagnosis was made, she died of far advanced bilateral pulmonary tuberculosis.

DISCUSSION

This comparison, I believe, emphasizes the necessity for immediate and vigorous treatment of all lesions when first seen, even if only minimal. Perhaps a resolving minimal lesion may be treated simply with rest in bed, but certainly a progressing one needs something more efficacious than this. Our policy has been to obey the admonition of Head that "tuberculosis seldom seems as serious as it is" and to terminate the period of watchful waiting as soon as lesions become larger than when first seen. In view of the above, it hardly seems "radical" to collapse a lung for a minimal lesion. It is far better to control the process by pneumothorax than to take a chance on having it progress beyond all hopes of assistance.

In Table IV, the fatal cases are tabulated. It will be noted that death occurred after relatively short periods of treatment. These were most unfavorable cases for this sort of program, the sort usually admitted to the segregating wings of sanatoria when facilities permit. In the absence of such facili-

TABLE IV  
DEATHS

- P. G. Bilateral; pneumothorax three months; admitted to hospital subsequently; tried without success to obtain hospitalization before pneumothorax was begun.
- C. J. Bilateral; on hospital waiting list; pneumothorax one month before death.
- M. J. Rapidly progressive minimal lesion; adhesions prevented pneumothorax; refused hospitalization when available; uncooperative.
- C. L. Bilateral spread unchecked by bilateral pneumothorax for six months.

- A. N. Bilateral spread unchecked by bilateral pneumothorax for six months.
- L. N. Onset with renal tuberculosis; pulmonary lesion first detected after nephrectomy; uncooperative; pneumothorax for three months.
- H. W. Unilateral; excellent collapse; negative sputum; syphilis and hepatitis; was death caused by tuberculosis?
- E. J. Bilateral far advanced; laryngeal involvement; sudden progression after four months of pneumothorax.
- R. H. Acute pneumonic onset; hospitalized after two weeks pneumothorax.

tis, it was decided to try pneumothorax in the hope that it would at least partially check the dissemination of tubercle bacilli and would encourage patients to follow the hygienic routine prescribed for them. We tried to make the best of a bad situation among negroes because their hospital facilities are so woefully inadequate. If seen earlier, perhaps some of these patients may have been saved. It is significant that of those who succumbed, only one patient had a technically satisfactory pneumothorax, and there is considerable doubt that he died of tuberculosis. Since he had complete closure of cavities and negative sputum, there is good reason to believe that death was caused more by his syphilis and hepati-

TABLE V  
UNIMPROVED OR STATIONARY

Case	Pneumo- thorax (months)	Remarks
M. G.	2	Adhesions prevent adequate collapse; lesions slowly retrogressing.
G. C.	4	Chronic fibroid phthisis; pneumothorax ineffective.
J. C.	10	Large "stiff-walled" cavity not closed by pneumothorax; manic-depressive psychosis.
E. L.	7	Schoolgirl, routine survey; rapid bronchiogenic spread; bilateral pneumothorax being tried.
P. M.	3	"Desperate" case; awaiting hospitalization.
B. S.	2	"Desperate" case; awaiting hospitalization.
H. T.	8	Cavity almost closed; to have pneumolysis.
C. F.	8	Cavity not closed yet but will probably be closed if internal pneumolysis can be effected.

tis, for both of which he was treated before tuberculosis was diagnosed.

In the unimproved or stationary group (table V) are found some desperate cases for whom pneumothorax is the only alternative to almost certain death from unattended progression of the disease. Two patients here have cavities suspended by cord-like adhesions, and probably adhesion severing will make their collapses sufficiently effective to place them in the successful group. The rapid spread of tuberculosis in the adolescent negress is well shown by E. L. whose diagnosis was made in a public school routine testing campaign. She did not report to the clinic for several months; when she did appear, the disease had spread considerably. Bilateral pneumothorax is now being tried, but the results are not encouraging.

TABLE VI  
UNSUCCESSFUL RESULTS

White	5
Dead	2
Deserted	2
Needs Pneumolysis	1
Negro	13
Dead	7
Worse	5
Deserted	0
Needs Pneumolysis	1
Total	18

Many objections have been raised to the maintenance of such a clinic. The fear that it keeps patients from a sanatorium is not valid; even if we should wish to admit all of them to sanatoria (and this is not granted), where shall we send them? The chief virtue of this clinic is that it permits separation of those suitable for dispensary service from those needing more elaborate attention in a sanatorium. Another fear is that complications will mar the program. There is no reason to believe that the unpredictable accidents (such as air embolism or spontaneous pneumothorax) will occur more frequently in the clinic than in the hospital. As a matter of fact, Myers has never encountered this in his clinic; Morales and Pastor induced pneumothorax 128,000 times with only 33 air embolic phenomena, five fatal. In our series of approximately

1500 inductions, air embolism, pleural shock, or spontaneous pneumothorax has never been recognized. The fear that pleural empyema will be frequent is not borne out by the Puerto Rico figures that of the minimal cases 0.5 per cent, the moderately advanced 3 per cent, and of the far advanced 8 per cent had empyema. Myers' figures are a bit higher; 2 per cent of minimal, 5 per cent moderately advanced, and 14 per cent far advanced developed empyema. In our series of 45 cases, fluid was detected only six times; in two of these patients empyema developed; both were treated by aspiration of fluid with air replacement and in neither instance was collapse impeded.

The economy of this plan is appealing. In Puerto Rico, Morales and Pastor estimate that it costs \$323 a year to keep a patient in a sanatorium. By contrast, they charged the entire cost of their field program against the third of their patients successfully treated, and yet, the per capita annual cost was \$84. It has been computed that it costs about \$800 annually to treat a patient in a public hospital in Louisiana, whereas, the annual cost of treating a patient in one of our clinics averages approximately \$50. This last feature is by no means intended to be the predominant factor; no amount of money is too great to spend in saving life. Yet, if there are limited funds with which to provide facilities for the tuberculous, obviously a plan is preferred permitting this amount of money to do the greatest amount of good for the largest possible group of patients.

#### SUMMARY

If patients with early or moderately advanced pulmonary tuberculosis are treated by artificial pneumothorax in the clinic or the home as soon as the diagnosis is made, many of them will be spared the necessity for prolonged incapacity and hospital care. The earlier induced, the more hopeful the prospects for successful collapse. Those successfully treated will have their lesions arrested, will be able to resume work and will not be dangerous to others. Those who cannot be successfully managed by this plan

should be given the benefits of modern sanatorium care. In the literature, there are enough reports to indicate that such a plan is safe and feasible, and experience with a small number of patients in this series demonstrates that it can be properly maintained in Louisiana.

#### DISCUSSION

Dr. Julius L. Wilson (New Orleans): I think Dr. Jacobs is to be congratulated upon being a pioneer in Louisiana in this work and for demonstrating in New Orleans what can be done, by going ahead and setting up a dispensary to collapse lungs. I was told in New Orleans that there was not much use in instituting a case-finding program because there were not enough beds, and that there was no use finding early cases of tuberculosis, if there was no place to put them. This paper shows one solution to that problem.

In regard to the type of case suitable for such a program, it should be the early case, minimal or moderately advanced. It should be the early case in point of time, picked up as soon as symptoms manifest themselves. The presence or absence of cavity, which others class as late or early, is not as important as the time element. A majority of our patients go into the far advanced stage very rapidly. Only 16 per cent are now admitted to sanatoria in the minimal stage. We have to find and treat at once all suitable cases as soon as possible after symptoms appear.

This sort of clinic is also useful in treating cases not only from the start, but also as they are discharged from the sanatorium. Such a clinic could handle both types of cases and thereby shorten the stay in the sanatorium. We have all had the experience of putting patients with minimal tuberculosis to bed, expecting them to recover promptly. For a while they improve, but after three to six months in bed, it is found that collapse of the lung is necessary. If a person's lung can be collapsed successfully and he can be kept on his feet, avoiding a long stay in bed, it is a great advantage to him.

It is a mistake to think because the patient has a minimal lesion that the duration of treatment will be short, that the patient can be kept in bed for a few months, or collapsed for six to nine months, and get permanent results. Because the lesion is small is no guarantee that it will heal up more quickly than a more extensive lesion.

It is clear from Dr. Jacobs' paper that the expense of treating a patient in this way is very much lower, one-sixteenth or one-twentieth that of hospitalization. A dispensary and hospital plan for the city and for the state should be carefully integrated. I know of one state which spent millions on buildings and hospital beds. They had had a waiting list of 500 and they added 600 beds;

and inside of a year they again had a waiting list; and inside of two years the waiting list was as long as before. They had no system of dispensaries in the state to give pneumothorax; they kept the patients two to five years to give them pneumothorax. I hope when we get a definite plan in Louisiana, whenever the whole state is covered, there will be an integrated program, with not only sufficient hospital beds, but sufficient clinic facilities to take the load off the hospitals and reduce the necessity for beds to a reasonable dimension. Costs of \$2000 to \$6000 per bed in modern buildings of fire-proof construction are entailed; but we should be slow in making that investment for every patient in the state when we can limit it by well-equipped clinics.

What such clinics need is, first, trained physicians, nurses and personnel. Next, they need a certain minimal number of beds for emergency cases, x-ray equipment, especially a fluoroscope, and laboratory facilities for sputum examination. Dr. Jacobs has demonstrated that one properly trained physician with the facilities of a good general hospital can undertake to operate a collapse therapy clinic for tuberculosis with excellent results at little cost.

Dr. A. J. Hockett (New Orleans): I think it is to be regretted that this paper has not been heard by every general practitioner at this meeting. I wonder how many of you recognize the challenge that this paper holds out to organized medicine, and especially to the men who do general practice. Tuberculosis, as everyone knows who is doing general practice, constitutes an economic disaster which has thrown the disease into socialized medicine almost at the request of organized medicine. Here is a solution to put tuberculosis back into the hands of the family physician, and when I say family physician, I mean just that. As Dr. Jacobs pointed out, the large majority of patients are back at work in a short time, sputum negative and no longer a public health menace.

Pneumothorax can be learned, so far as the technical procedure is concerned, in less than a week, and can be had with consultation at any number of centers throughout the state. Touro Infirmary operates with one bed. These patients are put to bed for 24 hours and then are seen for three weeks in the clinic. The cost is less than \$60.00 per year per patient. The need for social workers cannot be met in all communities. In smaller communities, the doctor is his own social worker. Very often there are no nurses, no laboratory technicians. A pneumothorax clinic can be established in your community. Our clinics are open for instruction without charge in the technic of pneumothorax, and every facility we have in New Orleans is open to you.

Dr. Charles R. Gowen (Shreveport): I have been doing tuberculosis work in this state and have been running a private clinic for 17 years, but have con-

stantly felt the need of more public clinics to handle a large group of tuberculosis patients who are unable to pay the fees for private treatment. This state is far behind in public health work in tuberculosis. The reason for the delay in tuberculosis work is rather difficult to explain, but I feel that Dr. Jacobs' beginning will stimulate other sections of the country to carry on with similar plans.

At my clinic we have 30 or 40 persons with pneumothorax under treatment at all times. We find that it always enables a patient to leave the sanatorium earlier, thus cutting down the patient's expense and the cure can be completed by the patient's return for treatment.

The length of time the lung should be collapsed was not brought out by Dr. Jacobs, but this is very important, I feel. All cavities should have been closed for 18 months, preferably two or three years, before they are allowed to expand. This should be shown by a careful check up, x-ray and sputum examination. The patient should be free from tubercle bacilli for two or three years before the lung is allowed to expand. If this is not carefully checked the lung will become reactivated and the trouble will spread very rapidly.

The complications in pneumothorax are many and it is not as simple an operation, in my opinion, as Dr. Jacobs has seemed to present. There are many factors to be watched and the patient's activities should be under constant supervision. The problem of dealing with adhesions is probably one of the most difficult to cope with. All adhesions should be cut as soon as possible after beginning pneumothorax. This should be done only by experienced individuals with no chances taken.

It is very interesting to note that a good many physicians feel they can not afford pneumothorax apparatus. I have used many kinds and am now using equipment costing close to sixty cents, not sixty dollars as advertised in most medical journals. Many patients are subjected to pneumothorax without rhyme or reason and in such cases a great deal of harm is done.

The type of needle used is extremely important. I prefer an 18 or 20 gauge needle with right angle bevel. This is not sharp enough to do harm if it should touch the lung. I also think it is best to use local anesthetic; however, good results are obtained without it.

Dr. Sandidge, in Shreveport, of the Caddo Parish Health Unit, has started a pneumothorax clinic similar to Dr. Jacobs'. He has started this in the last six months and is getting splendid results. I am glad to see that the Touro Infirmary is starting this work and wish them success.

Dr. C. H. Pember (Alexandria): I have been working in the tuberculosis field for 20 years, ever since the World War. In the Veterans' Hospital, I have now 98 beds, with 70 some odd patients at one time. Practically all my patients have far advanced tuberculosis with cavitation. Very seldom

do I have patients with unilateral disease. I have had a few to whom I gave bilateral pneumothorax with good results. One lung would become arrested and I would then continue on the other side. I have been treating some of the patients for four years; I have had others three, four and five years. I have half a dozen returning for refills, some every two weeks, some three weeks, some once a month for whole or partial collapse. I am dealing with men 40 years of age and up. I have two or three patients who are peace-time soldiers in their twenties; they are far advanced.

Many physicians say they collapse the lung completely, but they really get only partial collapse. I do not know whether I have ever seen one completely collapsed. Every one can give pneumothorax but they have to be careful. They will meet many difficulties. They can break the needle which is very embarrassing. Again you will find people coming to you who have been in a sanatorium taking pneumothorax for a year or two and they ask, "Doctor, can you give pneumothorax? How long have you been giving it? Do you give it in the front or back? Do you give novocaine? Do you use the needle without deadening the tissue?"

These clinics are excellent but I have the only one within many miles. Patients do not want to leave my place because they cannot get the pneumothorax elsewhere. Clinics, widely scattered, would be a good thing.

Dr. E. S. Baker (Alexandria): I do not have very much to say about pneumothorax. Dr. Pember has so much more to do with it than I. I have the colored tuberculous patients. It has been remarked that they do not get worse when you give collapse. I have followed two patients in whom the opposite lung became much worse. Three men in St. Louis, Traham, Singer and Ballou, in their book, are rather conservative. They say there may be danger in giving pneumothorax. Unless there happen to be adhesions in the lung in the mediastinum, you may compress the good lung. That is what happened in two of my patients who got increased infection in the opposite lung. These men are conservative about collapsing the lung. They urge that precaution be taken. I believe conservative treatment should be advised before instituting pneumothorax.

Dr. I. L. Robbins (New Orleans): I regret that Dr. Pember had the remarks to make that he did. We know how proverbially conservative doctors are. We have been asking for years, "Why do you not do pneumothorax more often?" The constant reply is, "My teachers or some physician told me it is dangerous." It seems to me that as physicians we have learned that any of the things we have worth while in the practice of medicine are fraught with danger. I insist that in the majority of cases, if the practitioners are talked to and explanations concerning the dangers of this are given; if we let them see artificial pneumothorax done and see that

needles do not break off any more than when doing a spinal puncture; that the pleura does not become infected except very infrequently; that we are not obliged except occasionally to extract pus or blood from the pleura, then the procedure will become more general.

If we are to get anywhere in collapse therapy, in the treatment of tuberculosis, we ought to quit throwing cold water on the procedure. What if it is dangerous? So is tryparsamide, as it does cause optic atrophy and blindness. We know also that salvarsan is dangerous, and yet no one stops giving salvarsan. Complications such as arsenical dermatitis and even death occur in all probability more commonly than complications following artificial pneumothorax. So I believe the thing we ought to do is foster the idea of more pneumothorax therapy. So far as giving it early—this is a moot question. We are told not to wait. This should only be done where the patient can be carefully observed. I do not think we ought to wait for these patients to get worse before inaugurating therapy.

We ought to know also that pneumothorax therapy is not difficult to employ, that it can readily be taught to the general practitioner.

We have all the material at hand even though we have no specific to bring about a rapid decline in tuberculosis in our community, but we are not using that material, especially artificial pneumothorax, at the present time because we are being unduly and unjustifiably frightened into not using that treatment.

I have seen patients fall on the floor or die on the table during the course of pneumothorax therapy but feel that it is important to put the idea over that sometimes years may go by without any complication or fatality in the hundreds and thousands of refills in patients we treat at Charity Hospital and in our private practice.

Dr. Ladislav Lazaro (Opelousas): I am sure that we all appreciate the fact that patients with tuberculosis should be seen in the earliest stages to begin successfully pneumothorax therapy. There is one point which is quite debatable, and I would like to ask Dr. Jacobs to touch upon it in his discussion. I would like him to tell what factors he utilizes in determining when pneumothorax should be discontinued after the sputum has become negative and the patient's physical condition has improved.

Dr. Sydney Jacobs (In conclusion): A paper on tuberculosis ought to stimulate people to talk about tuberculosis, and if anything I have said may make them think more about the potentialities of pneumothorax and its use, the paper has accomplished its purpose.

Unfortunately, it is not possible to reply to each one of the discussors separately, but I shall try to answer the questions raised.

The problem of expense is an important consideration. The successful use of pneumothorax is

the most economical treatment devised for tuberculosis, especially if early induction is done.

I believe, as Dr. Hockett pointed out, that the family doctor can keep his patient by instituting artificial pneumothorax early. He keeps the patient at home, prevents spread of infection to others and enables the patient to be a self-supporting and self-respecting member of the community at an early date.

Dr. Gowen asked about length of treatment. Pneumothorax should not be discontinued before eighteen months. Two years should be the minimum, and where there is a cavity, three years after the cavity closes, that is, counting from the time of cavity closure and not from the time pneumothorax was begun. For discontinuing pneumothorax, I prefer the plan of allowing the lung to re-expand gradually, following with sputum—fluoroscopic and x-ray examinations. When the lung appears to be healed, re-expansion may be allowed further but the process must be continued for many months. If the lesion appears to be re-activated, pneumothorax is immediately re-instituted.

The dangers of pneumothorax, as Dr. Robbins stated, have been far too much exaggerated and have been stressed more than the potential advantages. The unchecked advances of tuberculosis have killed many times the number of patients who have been even slightly affected by the untoward effects of pneumothorax. The complications of this procedure are in direct proportion to the extent of the disease. Fluid will form in a small percentage of patients with minimal disease; in the moderately advanced, the number increases; and in the far advanced, the number is quadrupled. The earlier patients have pneumothorax, the earlier they will return to work and the less chance there is for complications to develop.

The problem of adhesions, as Dr. Gowen pointed out, was one that formerly limited the use of pneumothorax, but today we have an operation for cutting adhesions. Included in the series of unsuccessful cases were two patients who have since had pneumolysis done and now have successful pneumothorax.

The point has been made that occasionally there may be a spread to the opposite lung. If it is seen within the first two or three weeks of pneumothorax application, I do not think you can blame it on pneumothorax; you may say the spread was going to occur and it happened to coincide with the induction of pneumothorax. In the majority of instances, when a technically satisfactory pneumothorax is produced, progression does not occur.

I would like to close by stating the three objectives given in the beginning of my paper: This is a plan for making the patient non-infectious to others, for stopping the spread of the disease in his lungs, and for restoring him to working conditions.

## ABDOMINAL PREGNANCY

### REPORT OF CASE

J. M. BODENHEIMER, M. D.

SHREVEPORT, LA.

According to Bronaugh, abdominal pregnancy occurs once in every 20,000 cases of pregnancy. Within the past four years three such patients have been seen in the Shreveport Charity Hospital, during which time less than 10,000 women have been delivered.

### PREOPERATIVE DIAGNOSIS

That the condition is not commonly diagnosed preoperatively is well attested by the fact that only 83 out of 236 cases collected from the literature were diagnosed before operation. One of the three cases in the Shreveport Charity Hospital was diagnosed before operation. Craig, who quotes Litzenberg, states that primary abdominal pregnancy never occurs. What happens, he says, is that the placenta, which remains attached to the tube when a tubal pregnancy ruptures, continues to grow and attaches itself to other viscera, the fetus growing in the abdomen. The presence of the placenta as a rule in the pelvis lends credence to this theory, although one case is reported where the placenta was adherent to the liver.

### TIME OF OPERATION

When to operate is a debated question. There are three opinions which I have gathered from the literature, all based upon sound reasoning: (1) At once; (2) after the fetus is viable; (3) after the fetus is dead. The greatest danger of waiting until after the fetus is dead is the added danger of sepsis. Waiting until the fetus is viable has a religious background inasmuch as statistics show that over 50 per cent of the viable fetuses died and even a larger percentage of the children were defective. Operating at once appears to be based upon the soundest surgical judgment as the risks to the mother appear least, due to the fact that physical deterioration of the mother is progressive.

## CHOICE OF OPERATION

There is a choice of three methods of procedure: (1) Complete excision; (2) marsupialization, or partial closure with drainage; (3) not disturbing the placenta. Of course if the placenta is easily removable, complete excision is permissible, but one never knows until after the attempt is made whether or not it is easily removable and then if the judgment is in error, the hemorrhage is, to say the least, disturbing. Marsupialization, or partial closure with drainage, long the standard method of treatment as recommended in many textbooks up until recently, has the many disadvantages of sepsis, shock and other complications. Leaving the placenta undisturbed seems to be the safest and most rational method of procedure. The fetus is extracted from the abdomen, the cord tied and cut close to the placenta and the abdomen closed with or without drainage. The patient runs an uneventful postoperative course not unlike an ordinary abdominal section and by the third or fourth week the placenta has been practically absorbed.

## MORTALITY

Out of 316 cases collected from the literature, 101 mothers died, a mortality rate of over 30 per cent. With the general use of the plan of leaving the placenta undisturbed and operating at once, the maternal mortality rate should be markedly reduced.

I wish to report a case treated in this manner:

## CASE REPORT

E. B., a colored female, aged 33, was admitted to Shreveport Charity Hospital August 3, 1939. The admitting diagnoses were pelvic abscess (?), uterine fibroid (?), rectal stricture (?). Personal history: She had been very sick for the past two or three months, with a chief complaint of constipation. About three months previous to admission, a large mass appeared in the right lower quadrant which was visible, palpable and painful. At this time she had a very high fever which lasted several weeks and left her markedly prostrated with loss of weight. For the past two months her condition has improved, but constipation and vomiting have increased to such a degree as to require two enemas daily. Purgatives gripped her to such an extent that they could not be taken. She says that

she was sent into the hospital by her doctor for the removal of the pelvic mass. Her last menstrual period occurred two months ago, but was scanty. She had menstruated two months previous to this last menstruation. She has always been irregular.

The physical examination revealed a well developed, undernourished, dehydrated negro female. Head and chest, negative; breasts flat and no secretion can be expressed. There is a well marked visible peristalsis of the small bowels through a thin abdominal wall. Two inches to the left and one inch below the umbilicus can be felt a small mass about the size of the index finger which gives one the impression of a small leg. The pelvis is frozen and the uterus and appendages cannot be mapped out; there is noticeable tenderness.

Laboratory examination: Red blood cells 3,560,000, white blood cells 10,000, hemoglobin 61 per cent. Wassermann, negative; urine examination, negative. Sedimentation test 24 in 60 minutes.

Operation: Under gas ether anesthesia, the abdomen was opened in the median line from symphysis to umbilicus. The omentum was found spread out thinly over the entire abdomen, and lying in the abdomen on the left side, head against diaphragm, was a live five months' fetus floating free in liquid. The placenta was attached to the pelvic organs presumably, but the adhesions were so dense that no attempt was made to locate its exact attachments. The fetus was extracted and the cord tied securely with chromic catgut no. 2, close to its placental origin. The abdomen was closed in layers with catgut and silkworm catgut and a small cigaret drain left in the lower end for 48 hours on account of the fluid which had become bloody while tearing through the omentum. The time of operation was thirty minutes. The patient made an almost uneventful recovery, her temperature never rising above 100° F., pulse rate between 90 and 100, respiration around 20, except on the third day when milk appeared in her breasts. On account of her anemia she was given 500 c. c. citrated blood on the third postoperative day. The engorged painful breasts, which persisted for more than two weeks in spite of strapping and the use of camphor and belladonna, was an interesting phenomenon.

The patient was up and about the ward on the tenth day following the operation. Upon pelvic examination on the twenty-third day, the uterus could be easily outlined and a small mass, presumably the remains of the placenta, was felt just about the fundus uteri.

The fetus, which had been placed in an incubator immediately following delivery as a mere gesture, lived four hours.

## SUMMARY

1. The statistical literature has been reviewed.

2. The time and method of operation are considered.

3. An instance of a patient is reported in whom operation was performed and placenta left undisturbed.

4. A plea is made for using this method of handling this condition.

## BIBLIOGRAPHY

- Best, Paul W.: Primary abdominal pregnancy, *J. A. M. A.*, 97:1521, 1931.
- Bourguigon: Exceptional localization in the abdomen of an extra-uterine pregnancy, *Arch. d. mal. de l'app. digestif.*, 21:256, 1931.
- Bray, Philip N.: Abdominal pregnancy at eight months, *Minnesota Med.*, 21:498, 1938.
- Bronaugh, W.: Abdominal pregnancy: Report of a case two weeks past term, *Ohio State Med. J.*, 30:823, 1934.
- Crecca, W. D. and Cacciarelli, R. A.: Full term abdominal pregnancy with recovery of both mother and baby, *Am. J. Obst. & Gynec.*, 36:312, 1938.
- Daly, W. P.: A case of intra-abdominal pregnancy, with living child, *Am. J. Obst. & Gynec.*, 13:649, 1927.
- DeLee, J. B. and Greenhill, J. P.: *Year Book of Obstetrics and Gynecology*, Year Book Publisher, Chicago, 1937.
- DeLee, J. B.: *Principles and Practice of Obstetrics*, W. B. Saunders Co., Philadelphia, 4th ed., 1924.
- Esau, P.: Abdominal pregnancy. Blue navel. Ovarian pregnancy. Tubal pregnancy with monochorionic twins of first month, *Zentralbl. f. Chir.*, 61:620, 1934.
- Harkness, J. and Bell, F.: Extra-uterine, intra-abdominal pregnancy, *Brit. Med. J.*, 2:1044, 1938.
- Hellman, A. M. and Simon, H. J.: Full term intra-abdominal pregnancy, *Am. J. Surg.*, 20:403, 1935.
- Lacouture, J. and Péry, J.: Abdominal pregnancy at term with fetus dead for one month, *Bull. Soc. d'obst. et de gynéc.*, 10:611, 1921.
- Longley, E. G.: Full term retroperitoneal abdominal pregnancy, *Am. J. Surg.*, 27:349, 1935.
- Mendenhall, A. M.: Diagnosis of advanced abdominal pregnancy, *Am. J. Surg.*, 18:270, 1932.
- Petersen, E.: Two advanced cases of abdominal extra-uterine pregnancy, *Hospitalisidende*, 65:49, 1922.
- Reid, Ronald: A case of abdominal pregnancy, *Brit. Med. J.*, 1:1301, 1938.
- Schubert, G.: Abdominal pregnancy following supra-vaginal amputation of the uterus, *Zentralbl. f. Gynäk.*, 51:3238, 1927.
- Titus, Paul: *Management of Obstetrical Difficulties*, C. V. Mosby Co., St. Louis, 1937.
- Werhatzky, N. P.: Secondary abdominal pregnancy and bilateral tuberculosis of the fallopian tubes, *Zentralbl. f. Gynäk.*, 56:2946, 1932.
- Williams, J. W.: *Obstetrics*, D. Appleton & Co., New York, 1928.



# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., *Ex-officio*

For one year: Leon J. Menville, M. D., Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.,  
Vice-chairman

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

## EDITORIAL STAFF

John H. Musser, M. D. .... *Editor-in-Chief*

Willard R. Wirth, M. D. .... *Editor*

Edwin L. Zander, M. D. .... *Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D. .... *General Manager*  
1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

## MEDICAL ECONOMICS

Plank No. 6 of the platform of the American Medical Association says, "In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established" are advocated. This particular plank arouses much interest in the mind of the medical man who has followed some of

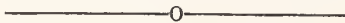
the efforts, it must be confessed rather abortive, on the part of the central government, to aid in what it thinks is a necessity, namely to build hospitals here, there and everywhere. The efforts of the government in this direction have been woefully weak and ill-advised; for example in the State of Michigan hospitals have been constructed in small towns which are absolutely unable to pay for the upkeep, nor do they have the medical personnel to man such hospitals on a large scale. It perhaps may be that President Roosevelt's scheme of building hospitals that will cost from \$100,000 to \$150,000 may work out satisfactorily. These hospitals would be for the ordinary medical and surgical cases, and the more difficult problems which require the help of specialists might be referred to the larger centers.

But the question arises how many urban localities, large and small, are there where there are not already hospitals available for the population as a whole? Most hospitals, it has been shown by the American Medical Association, do not begin to run to capacity; there are many, many beds available. Why, if these hospitals already established are not filled, should not they be used for the care of the indigent rather than building additional competitive institutions? It is true that many of the hospitals throughout this country are small private institutions owned by a physician or a small group of doctors. It would be very much cheaper and simpler than constructing big institutions to make use of these hospitals that already exist. If the government should pay the privately owned hospitals for the cost of the care of the indigent it would not have to go into huge capital expenditures.

To many it looks as if the government, far from being worried about the deficit, was looking for ways to spend money. In Louisiana an announcement appeared in the press the second week of January which stated that three million dollars were to be spent immediately on extensions and remodeling of the Marine Hospital at Carville. Those familiar with this institution

know that in its present state it serves as a well equipped, well constructed, comfortable retreat for these poor unfortunates. The whole institution at present might be said to be quite up-to-date and yet a program is on which will eventually require the spending of five million dollars for construction. This would represent an expenditure of capital which will amount to approximately \$14,000 for each inmate of the institution. To the disinterested observer it would seem that these people, who are largely there for institutional care rather than for medical treatment, could have a mighty fine individual home built for each and every one of them at this cost. Like so many of the governmental expenditures, all this seems like a waste of money.

If the government should take over the medical services in the United States an uncontrolled, reckless expenditure of funds would probably result. Doctors are not economists but in expending funds they would and could do very much better than lay bureaucrats whose sole purpose is to get as much money as they can for their particular branch of the service. Certainly the physician would not willingly expend large sums unless there was a real necessity for such monies to be disbursed.



#### GRADUATE MEDICAL ASSEMBLY

It has been pointed out in this section of the Journal that the fourth New Orleans Graduate Medical Assembly will be held February 26-29, the meeting being dedicated in honor of the sixtieth year of Dr. Matas' medical life. It is to be hoped that because of this anniversary there will be a large attendance. There are so many men who love and honor this country's most distinguished surgeon that it is believed many will come to pay tribute to a truly great man.

The tentative, practically completed, scientific program with a list of speakers is printed elsewhere in the Journal. It might be well, however, to call attention to some of the really prominent men in medicine who will deliver talks and give clinics.

In the surgical division the surgical heads of two of the very important medical schools in the East, Harvard and the University of Pennsylvania, will appear on the program. Dr. Elliott C. Cutler, at the present time the Moseley Professor of Surgery and surgical chief of the Peter Bent Brigham Hospital, will not only deliver several scientific presentations but he will also give a half hour talk on the accomplishments of Dr. Matas, and he will conduct a surgical pathologic conference with Dr. Shields Warren. Dr. Cutler's career is one of brilliance. In college and medical school he was the recipient of membership in honorary societies, including Phi Beta Kappa and Sigma Xi. During the early years of the World War he worked in Paris, came back to this country to the Rockefeller Institute for duty, subsequently being commissioned as Major, and on leaving the service was awarded the Distinguished Service Medal. The next few years were spent at Peter Bent Brigham Hospital and Harvard University and in 1924 he was called to the Chair of Surgery, Western Reserve University School of Medicine, which position he held until his return to Harvard.

Dr. Eldridge L. Eliason has spent all of his medical life at the University of Pennsylvania. Graduating from Yale University, where he was not only a brilliant student but an outstanding athlete, the holder of half a dozen or more Y's, he then went to the University of Pennsylvania Medical School where he was an honor student. He gradually rose in the surgical ranks by industry and intelligence to the position which he now holds, the John Rhea Barton Professor of Surgery. During the War, Lt. Col. Eliason served for two years, one year of which time he was head of the surgical division of the University of Pennsylvania Base Hospital. Dr. Vilray P. Blair is another surgeon who has made for himself a superb position in a special division of surgery. He is one of the best known of the plastic surgeons in the country. He is Professor of Clinical Surgery at the Washington University School of Medicine

and of Oral Surgery in the School of Dentistry in this University.

In the more limited specialties, four men are on the program who would be known to any one who engages in their speciality. Dr. Henry E. Michelson, of Minneapolis, who will talk on dermatology for the general practitioner and on the treatment of common skin diseases, is Professor of Dermatology at the University of Minnesota Medical School and Professor of Medicine, Dermatology and Syphilology in the Graduate School of Medicine of the same University. Dr. Donald S. Childs is Professor of Clinical Radiology in the College of Medicine of Syracuse University. He is a member of all the important radiologic societies in this country. He will, in his talks, also confine himself largely to the subjects which are of interest to the man who is in general practice, the gist of his talks being radiology for the general practitioner, and the care of the carcinoma patient. Dr. William Mithoefer was one of the early specialists in his particular field in which he has obtained a national reputation. At the present time he holds the position of Senior Attending Otolaryngologist at Christ Hospital, Cincinnati, Ohio. His talks will be of general interest, the first has to do with what the general practitioner should know concerning the nasal accessory sinuses, and the second on the frequency and treatment of benign hypothyroidism. The field of orthopedics will be represented by Dr. M. N. Smith-Petersen who has been head of the orthopedic department at the Massachusetts General Hospital since 1929, and is also Professor of Orthopedic Surgery at Harvard Medical School. The subject of this well-known orthopedist will deal with the hip; in one talk he will discuss arthroplasty and in the other, internal fixation of fractures of the hip.

It will be seen from the list of speakers and from the titles of their presentations that for the most part this meeting will be of comprehensive interest to physicians, whether they be general practitioners or specialists.

## POLIOMYELITIS IN LOUISIANA

It has been pointed out repeatedly in the section "Infectious Diseases in Louisiana" in the State Society News, that cases of poliomyelitis have been reported to the State Board of Health recently to a considerable number. Of course poliomyelitis in Louisiana has never reached epidemic proportions, but almost regularly of late every week there are one or two or even more patients listed as having this disease. Poliomyelitis, although in a large number of instances is not a fatal malady, nevertheless is one which is crippling and disabling, **not** temporarily, but usually for the life of the patient. Anything that can be accomplished in order to diminish the incidence of poliomyelitis, it hardly goes without saying, should be done.

It has been shown by Paul and his associates<sup>1</sup> that urban sewage contains poliomyelitis virus at times in concentration sufficient to reproduce the disease in the experimental animal. This work followed the known fact that the virus of poliomyelitis has repeatedly been isolated from human feces. These observations are particularly pertinent because of a publication in *Science* by Casey and Aymond,<sup>2</sup> emanating from the Louisiana State University School of Medicine and the Louisiana State Board of Health. These authors pointed out that during a ten year period which came to a close the first of last year, in Louisiana there were 766 cases of poliomyelitis, practically all of those involved becoming paralytic. As indicated above, probably the majority of the cases were reported in the last five years.

Casey and Aymond show that among these reported cases the highest rates of poliomyelitis, 120 per 100,000 inhabitants, were found in communities where the population was between 100-2,999. In some small urban communities the rate was 68.2 and 92.7 per 100,000 population. The rate was three times the rate in the strictly rural communities and larger cities of over 5,000 population. The greatest incidence was in towns of between 1,500-2,000 inhabitants.

In the eighty-seven incorporated communities which have a water supply but do not have a sewerage system, there was a rate of 83.6. The highest rates for poliomyelitis, 120 cases per 100,000, were found in the communities in which there was a relatively small average daily water supply per capita. The figures are very much lower in these communities which had and used a greater amount of water.

The two recorders of the above data believe that a greater amount of fluid, either through dilution or by increase in the rate of flow, has a definite effect on diminishing the incidence of this disease. They suggest

also that the epidemicity of poliomyelitis may be influenced by the tendency of certain communities to liquefy their excreta, yet not making proper provisions for the disposal of the accumulated fluids.

Summarizing these observations it might be pointed out that proper sewage disposal might well result in a diminution of the incidence of poliomyelitis, and that there might as a result of this, be fewer of these dreaded cases in the state.

#### REFERENCES

1. Paul, J. R., Trasl, J. D., and Culotta, C. S.: Poliomyelitis virus in sewage, *Science*, 90:258, 1939.
2. Casey, A. E., and Aymond, B. J.: The distribution of poliomyelitis in Louisiana, *Science*, 91:17, 1940.

---

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### SOUTHERN BAPTIST HOSPITAL

New Orleans

A regular monthly meeting of the staff of Southern Baptist Hospital was held January 23. The program consisted of a presentation of motion pictures on plastic surgery by Dr. Waldemar Metz and a talk on spontaneous pneumothorax by Dr. Julius L. Wilson. Following the scientific program these officers were elected: Dr. Charles L. Cox, Chairman; Dr. J. T. O'Ferrall, Vice-Chairman; Dr. Garland Walls, Secretary; Dr. Robert Sharp, Treasurer.

---

### TOURO INFIRMARY

New Orleans

At the meeting held in June, 1939, the following paper was presented by Dr. R. S. Crichlow:

#### THE USE OF PRONTOSIL LOCALLY IN INFECTIONS OF THE EYE

One year ago in the Eye Clinic at Touro I began the use of prontosil locally in treating acute conjunctivitis. At that time we had a number of patients we had been treating in the usual way who had responded very slowly to the treatment. Several had been under treatment from six weeks to two months. The smear showed mostly a mixed infection; staphylococci, diphtheroids, *Streptococcus hemolyticus* and *viridans*. I began the instillation of prontosil 2½ per cent into the eyes of these patients and had the patient use the same solution at home, first washing the eye with a weak boric acid solution, then using the prontosil three times a day.

In practically every instance we obtained good results. In one week to ten days' time the eye infection was cured. In two patients it did not work, due to the predominance of staphylococci. Some ten of the patients were babies.

Two eye infections of gonococci were treated in the same way except applications were every four hours; resulting in a cure with no corneal destruction. We have also used it in ulcer of the cornea and in two patients used it both locally and internally, with success in both instances.

I have used it also in pneumococcal infections of the eye, or so-called "pink eye." This condition, as you know, is self limiting, but prontosil has a definite influence on shortening the course of the disease.

One of the most striking results was a patient of Dr. Blum in whom he had been trying to get the eye sterile for operation for many months. We began the use of prontosil in the eyes and in one week's time had a sterile field for operation.

During the past year I have treated about one hundred patients in this clinic and my private work with prontosil, and in 90 per cent of the patients treated have obtained the results desired.

This drug is not a panacea for all ills, but it is a definite adjunct to treatment of eye infections locally, caused especially by streptococci, diphtheria, pneumococci, gonococci, *Streptococci hemolyticus*, and in mixed infections where the staphylococci does not predominate.

May I list a few of the points of interest in its use locally: (1) In instillations as used, it is non-toxic and non-irritating to the eye or mucous membrane; (2) where there is a quantity of pus it is always best to irrigate the eye with a weak boric acid solution before instillation; (3) in all infections except gonococci I have found it best to have the instillations made three times daily. If made every two or three hours you get an irritating effect, which clears on stopping use of the drug for 24 hours. In gonococci it is best to use it every four hours; (4) where more rapid action is wanted, as in streptococcal (erysipelas) infection,

it is best to combine the internal use with the instillation.

I would like Dr. Blum to report on his observation and use of this drug.

A meeting of the medical staff was held on Wednesday, January 10. The program consisted of a clinicopathologic conference led by Dr. John Lanford. Following this presentation Dr. Warren Rosen read a paper entitled "The Causes of Post-operative Deaths Based on an Analysis of 944 Cases."

HUTCHINSON MEMORIAL CLINIC  
OF THE  
SCHOOL OF MEDICINE  
THE TULANE UNIVERSITY OF LOUISIANA  
New Orleans

Scientific Session conducted by the Department of Tropical Medicine, December 6, 1939, Dr. E. C. Faust, presiding.

*Diagnosis and Treatment of Oxyuriasis* (Dr. Willi Sawitz): Oxyuriasis presents diagnostic as well as therapeutic problems which are quite different from those of other parasitic infections. This is due to the rather unique, though simple life history of pinworms.

It may be recalled that the adults live in the appendiceal region of the intestinal tract, and that the gravid females migrate down into the rectum and, usually at night, out of the anus to deposit their eggs on the perianal and perineal region of the patient. Each female lays about 11,000 eggs, and the mother worm dies after oviposition. The eggs soon become infective and, when ingested, give rise to a directly developing adult. The whole life span of a pinworm is probably less than two months.

The diagnosis of any parasitic infection is based on clinical symptoms, immunologic tests or on the recovery of the causative organism. In oxyuriasis, the clinical symptoms are too variable and vague to permit a diagnosis. A slight increase of eosinophils may occur. Brady and Wright (1939) found an average of 5.1 per cent eosinophils in an infected group as compared to 3.7 per cent in a negative control group, although with a considerable deviation from the mean in both groups. Oxyuriasis patients sometimes complain of vague abdominal pain, even of nausea or vomiting. Restlessness at night is attributed to the annoyance caused by the migrating worms. Dark circles under the eyes and a pallid facies may be present in spite of a normal hemoglobin determination. Pruritus ani may occur due to a mechanical irritation by the migrating worm or an allergic reaction of the patient to the pinworm material. Pinworms may cause enuresis and, in females, a vaginal discharge when they migrate into the vulva.

These clinical symptoms, however, are not always present and when present, are not specific

for oxyuriasis. A diagnosis cannot be based on them alone.

Immunologic reactions in oxyuriasis were demonstrated as early as 1913 by Trumpp, who showed that extract of powdered worms may be employed as antigen in skin as well as complement fixation tests. In 1924, Grubel obtained satisfactory immediate skin reactions with a saline worm extract and Schroepfl, in 1926, a delayed skin reaction with an alcoholic extract. In 1937, Wright and Bozicevich used a 1:5,000 saline extract of powdered worms and obtained a positive reaction in 95 per cent of known positive cases. However, positive reactions were also obtained in cases where pinworms were not present. In 1939, Tsuchiya and Bauerlein, employing a Coca's solution extract, obtained reactions in agreement with parasitologic findings in 85 per cent of 34 cases.

The results obtained by these workers indicate that immunologic tests may be an aid in the diagnosis of oxyuriasis, but are not yet sufficiently perfected to give consistent results. In addition, they are not practical, since it is difficult to obtain the large number of pinworms needed for the preparation of the antigen.

The demonstration of the pinworms or their eggs remains the only specific diagnostic procedure. Fecal examination for pinworm eggs is unreliable since the worms usually do not oviposit while in the intestinal tract. Eggs were found in stools in only 56 of 358 positive cases, in which comparative examinations were made in our Department last summer. Eggs are best recovered from the perianal and perineal skin, where the mother worm has oviposited. Adult pinworms may be found after being passed per anum voluntarily or after administration of an enema. However, the finding of adult pinworms or eggs is no conclusive evidence of pinworm infection, but marks the terminal point of infection with this individual worm. "... the finding of pinworm eggs merely establishes the fact that pinworms have been present recently, and the probability that other pinworms are still present." (Hall and Cram, 1939). This probability, however, is great, and in our series of 154 individuals positive for pinworm eggs, more than 70 per cent showed more than once when seven consecutive examinations were made.

Several technics have been recommended for obtaining material from the perianal region for microscopic examination, including the use of curettes, spoons, glass tubes, glass rods, metal, wooden or glass spatulas, matches, cotton pledgets and other devices. The cellophane swab technic devised by the late Dr. Maurice C. Hill, National Institute of Health, has been found the most satisfactory. In order to obtain the material, the cellophane-tipped glass rod is passed radially among the perianal folds and over the neighboring perineum. The cellophane of this NIH swab, with the mucus and fecal material adhering to it, is

placed directly under the microscope and examined, thus avoiding possible loss of eggs during transfer. Since pinworms usually migrate when the patient goes to bed, this hour would be the optimum time for obtaining the swab. However, the early morning is more convenient, immediately when the patient arises and before he goes to the toilet or bath. Since pinworms do not necessarily migrate every night, a single negative swab examination does not exclude oxyuriasis. The swab examinations have to be repeated, and repeated swab examinations have revealed additional infections. The number necessary to ascertain the absence of pinworms has been determined as being seven. The swabs are best if obtained on alternate days.

More than 99 per cent of the positive cases were detected by the use of seven NIH swab examinations. Thus, this improved diagnostic technic provides a means to evaluate more accurately methods of treatment recommended for oxyuriasis.

The treatment of oxyuriasis may be directed against anyone or all of the following three sources of infection: against the mature worms in the appendiceal region, against the gravid females in the rectum and against the worms and eggs in the anal cleft and on contaminated environmental objects.

A number of drugs have been recommended for the removal of mature worms, including santonin, oil of chenopodium, thymol, naphthalin, aluminum compounds, carbon tetrachloride, turpentine, male fern, tetrachlorethylene and hexylresorcinol.

Since the absorption in the intestinal tract diminishes the efficacy of drugs in the large intestine, the removal of gravid females from the large intestine is better accomplished by purgatives—salts or calomel—or by the use of enemas, medicated or non-medicated. Medicated enemas utilized sodium chloride solution, vinegar diluted 1:4, acetic acid solution (1 per cent), onion decoction, oil of chenopodium (15-25 drops shaken up in one liter of water), phenol solution (1-10 minims in one pint of water), corrosive sublimate solution (1:10,000), benzol (10 minims emulsified in one ounce of egg-yolk and two ounces of water), quassia (one ounce steeped in one pint of hot water), solutions of lime water or formaldehyde, hexylresorcinol enemas and jelly, and soapsud enemas.

To destroy worms or eggs in the anal cleft an anal wash or ointment has been used, such as official unguentum phynolis (3 per cent), unguentum hydrargyri ammoniati, a 1:10,000 bichloride solution, silver nitrate solution, a camphor ointment, thymol ointment, quinine ointment and para-dichlor-benzol ointment.

Additional rigid individual and general cleanliness measures were recommended to prevent reinfection.

Most of these measures and drugs have been recommended on the basis of temporary clinical

improvement or the failure to observe worms in the stools. They have not justified the hopes raised when first advocated. When tested (Wright, Brady and Bozicevich) by a sufficient number of cellophane swabs, tetrachlorethylene had an efficacy of about 50 per cent, santonin of less than 50 per cent, hexylresorcinol by mouth and as jelly an efficacy of about 35 per cent, and by enemas (1:2,000) of 40 per cent. In 1938, Wright, Brady and Bozicevich introduced medicinal gentian violet in enteric coated tablets for the treatment of oxyuriasis and reported a cure rate of 91.8 per cent when the individuals were tested during the first three weeks after treatment and 57.9 per cent when tested seven weeks after treatment. Later on, a new type of coating was used as manufactured by the Seal-ins Laboratories. These tablets are said to dissolve in the intestinal tract within a specified number of hours, depending inversely on the thickness of the special coating. Tablets of the four hour type are used, which are said to dissolve in the fecal region. One grain (two tablets) is given three times a day before meals for eight days and this course is repeated after a seven day rest period. More than 80 per cent of those treated with the new type of coating were found negative when tested seven weeks after treatment. The efficacy of Seal-ins coated gentian violet tablets has been studied by us and the work of Brady and Wright confirmed in groups of institutionalized children in New Orleans, especially when compared with the effect obtained by preventive measures alone. Since the life span of pinworms probably does not exceed two months, a cure might be expected by eliminating reinfection. Since no method safe for the patient is known that will destroy the eggs on the perianal skin, preventive measures have been directed mainly against eggs contaminating environmental objects. Eggs have been recovered from environmental objects, as the inside of pajama pants, bed sheets, mattresses and the framework of beds, floor cracks, ledges of pillars, doors and windows, bath tubs, wash basins, toilet seats, dresser and cabinet tops, shelves, picture frames, ceiling lights and chandeliers. A cleanliness program was inaugurated in a New Orleans home for children, 69 boys and girls, 38 per cent of whom were infected with pinworms. Rigid hygienic measures were carried out in this institution, which was already scrupulously clean. Two extra housemaids were employed; every room was cleaned with hot water and soap daily; the children wore short cotton pants during the night, these pants being changed and sterilized daily; bed sheets were changed and sterilized daily; underwear was changed daily and sent to the laundry; nail brushes were provided for each child and their use enforced; two showers were taken daily instead of one. These measures were carried out for a period of six weeks at a cost of more than 700 dol-

lars. The results of this preventive treatment revealed that 29 per cent of the previously infected persons were still infected and an additional 22 per cent had become infected. This actual increase from 38 per cent to 51 per cent is conclusive proof that hygienic measures *per se* do not suffice to eradicate pinworm infections in institutionalized children groups, and that medicinal treatment must be employed. In two other institutionalized children groups gentian violet treatment was given with variations in dose and length of medication time, and an efficacy of about 90 per cent was found when these children were examined by means of seven NIH swabs made within 26 days following treatment.

The drug, in general, was well tolerated and untoward symptoms, never of a serious nature, could be alleviated by stopping medication for one or two days. About half of the children who took one grain of gentian violet three times a day and one-third of those who took one-half grain complained of loss of appetite, abdominal cramps or nausea at one time or another. Vomiting occurred, but its frequency was low, when computed on a basis of the total number of doses of the drug administered. It occurred more frequently in girls than in boys.

While medicinal gentian violet will, therefore, cure about 90 per cent of individuals infected with pinworms, this treatment alone does not comply with the requirements necessary for the eradication of oxyuriasis. To be efficient treatment must be 100 per cent effective. If an anthelmintic removes 90 per cent of the hookworms harbored by a person, the treatment will usually have reduced the infection to one of non-clinical significance. It will remain in this status or become completely eradicated if the patient exercises the simple precautions necessary to prevent reinfection. In the case of oxyuriasis, however, the removal of 90 per cent of the worms affords only transitory relief. The remaining infection will soon be built up to a higher level (Wright and Cram, 1937). Furthermore, the ease of reinfection and the lack of any known method to prevent reinfection make it almost worthless to treat one particular patient. Although restriction of direct contact with infected individuals or contaminated objects and individual cleanliness may reduce the opportunities of infection, a single infected individual in institutionalized groups as well as in families is a probable source of reinfection. Examinations of families in the Hutchinson Memorial Clinic have shown that almost invariably other members of the families were infected in addition to the original patients.

The treatment of a pinworm-infected individual, therefore, should include the following:

1. The determination by means of NIH swabs of all infections among those living with the patient.

2. The treatment of those found infected with medicinal gentian violet in Seal-ins coating of the four hour type;  $\frac{1}{2}$  to 1 grain three times a day before meals over a period of two to three weeks with or without rest periods between, depending on the tolerance of the patient to the drug.

3. Post-treatment examinations of the whole group and repetition of treatment for those still found infected.

*The Dangers of Strongyloides Infection:* (Dr. E. C. Faust): First may I apologize for bothering you with a somewhat generalized biologic and clinical history of *Strongyloides*, the etiologic agent of strongyloidiasis. To refresh your memories I shall present a review of historic information leading up to the topic which I am presenting.

#### BIOLOGY AND LIFE CYCLE

The worm (*Strongyloides stercoralis*) was discovered in 1876 by Normand in French soldiers suffering from Cochin-China diarrhea. Later in the same year and in the year 1877 these worms were described and named by Bavay. Five years later, in 1882, the German physician and parasitologist, Leuckart, proved that the two phases (intestinal and stercoral) were parts of the same life cycle. In that same year Leichtenstern became convinced that the direct and indirect strains were distinct, the former being found in temperate zones and the latter in the tropics. Investigators found no males of the parasitic generation, hence they were inclined to believe this phase of the cycle was parthenogenetic. However, in 1926, syngony was postulated by Sandground, who found spermatozoa in the parasitic females.

In 1932 Kreis discovered the parasitic males. In the following year, Faust described the complete development of the parasitic males. The male is broadly fusiform, measuring about 0.7 mm. in length by 40 to 50 microns in greatest transverse diameter. There are no caudal alae, but two spicules and a gubernaculum are developed. The tail portion is pointed and is curved ventrad. The parasitic males are rhabditoid in type and are almost identical with the free-living males, having larger buccal chamber. They are not tissue parasites and after a brief stay in the body are voided in the feces.

#### PATHOLOGIC AND CLINICAL ASPECTS

In 1900 Askanazy proved that the females lived in the mucosa of the small bowel. In 1911 Looss, and later in 1914 and 1926, Fulleborn proved the soil to be the source of infection, the skin the portal of entry, and that a lung journey, as in hookworm disease, was required for infection.

Fulleborn, in 1914, and Faust, in 1936, found maturing and ovipositing females in the bronchial and tracheal epithelium. Larvae were found by J. G. Gage in 1911 and again by Froes in 1930 in the pleural and pericardial fluids.

The more characteristic symptoms of strongyloidiasis were first noted by Nathan Barlow, in

1915, and later studied by Hinman, in 1926. The most outstanding of these were diarrhea, frequently alternating with constipation, abdominal pain, loss of weight, nausea, vomiting and abdominal distention. To these there was added by Barlow, in 1915 and again by Faust, in 1938, the symptom of occasional uncontrolled watery diarrhea.

#### AUTOINFECTION (SELF-INFECTION)

Since 1887 self-infection has been postulated by several workers to explain the persistence of strongyloidiasis in patients living for 20 to 25 years outside of the areas of soil pollution; yet many workers even now are reluctant to accept this view.

During the years 1910-1911 J. G. Gage had a patient in Charity Hospital, New Orleans, with filariform larvae of *Strongyloides* in his sputum. At necropsy larvae were found in all layers of the intestinal wall and in the intestinal lymphatics. According to Gage, "the larvae penetrate the gut wall, enter the lymph stream, pass up the thoracic duct to the subclavian vein and reach the lungs by way of the blood stream, appear in sputum and when swallowed develop into adult worms." Additional clinical and pathologic evidence supporting internal autoinfection has been presented by Darling (1911), Yokogawa (1913), Ohira and Shimura (1918-1919), Ophuls (1929), Nalasco and Africa (1936) and Torres and Penna de Azevedo (1936).

In 1914 Fulleborn unsuccessfully attempted to produce internal autoinfection in dogs and sponsored the idea of perianal autoinfection. Schimura in 1920, Nishigori in 1928 and Faust in 1934 were all successful in developing internal infection in experimental dogs. A critical analysis of the pathologic and clinical reports on human strongyloidiasis previously referred to, together with the experimental work, should convince the most skeptical reader that hyperinfection (i.e. internal autoinfection) not only has been adequately demonstrated but, furthermore, is not unique. As additional documentary evidence in proof of hyperinfection, the following case report is submitted.

#### CASE REPORT

A 12 year old male was brought to the University of Arkansas Hospital, Little Rock, Arkansas, suffering with severe abdominal pain and in a moribund state. The family of this patient, consisting of six, resided in a one-room shack. They had all been ill with "intestinal influenza."

The patient's abdomen was moderately distended. However, he had no diarrhea and no fever. Blood examination indicated a slight leukocytosis and 4 per cent eosinophilia. The patient expired only a few hours after admission to the hospital and about four weeks after the onset of his intestinal attack.

In the limited autopsy done on this patient by the pathologist, Dr. Albert DeGroat, the following

points are worthy of note: there were a moist peritoneum and enlarged mesenteric lymph nodes; many petechial hemorrhages on the serous surface of the lower ileum; the liver was small and showed fatty degeneration on section; the chest cavity showed only small patches of atelectasis in the lower lobe of the left lung. Sections were taken of the lower ileum, cecum, appendix, mesenteric lymph glands, and liver. Tentative pathologic diagnosis was "starvation." Sections of all of the tissues preserved at autopsy were sent to me. I found all stages of invasion of the bowel wall, lymph nodes and liver filariform larvae of *Strongyloides*.

*Conclusion:* The tissues definitely indicated an internal autoinfection with *Strongyloides*, probably resulting from inadequate host tissue reaction to the parasite.

#### TYPES OF CLINICAL STRONGYLOIDIASIS (RELATED TO THE BIOLOGY AND HOST-TISSUE RELATIONS OF THE PARASITE)

1. Rhabditoid larvae (only) are evacuated in the stool. No danger of self-infection in patients who cleanse themselves after defecation.
2. Rhabditoid larvae transform into filariform larvae in the perianal region if the patient does not cleanse himself after defecation. (Autoinfection of Fulleborn).
3. Rhabditoid larvae transform into filariform larvae in the bowel lumen in constipated patients and invade the bowel wall. (Internal autoinfection or hyperinfection).
4. Rhabditoid larvae transform into filariform larvae in the intestinal mucosa, producing hyperinfection.
5. Rhabditoid larvae in the mucosa migrate into the submucosa without metamorphosis and produce overwhelming hyperinfection.

Hyperinfection is not merely a theoretic possibility but is a fact based on documentary evidence, and may be accomplished in several ways as outlined above. Moreover, every individual harboring *Strongyloides* may be a potential case of hyperinfection, although the degree of danger depends on a number of factors over which the individual has considerable control, including: (1) personal hygiene, especially care against constipation and need to keep the anal and perianal areas free of fecal soil; (2) adequate nourishment, to provide a guarantee of the body's resistance against the parasite, and (3) early diagnosis and specific therapy.

*The Therapeutic Uses of Atabrine* (Dr. Joseph S. D'Antoni): Two years ago, at a staff meeting of the Hutchinson Memorial Clinic, Colonel Craig advocated atabrine as a therapeutic for malaria. The Department of Tropical Medicine has noted that there still exists a reluctance on the part of the physicians in employing this drug. Some may have stopped using atabrine after encountering untoward symptoms, while others may have been



impressed with the overemphasis of the effects associated with its administration. A perusal of the literature on this subject permits one to evaluate properly the advantages and disadvantages of the drug. The discussion presented is based on a compilation of data regarding the therapeutic use of atabrine in patients under physicians' care. It will not include its use in prophylaxis, or a comparison of atabrine to quinine treatment.

The Malaria Commission of the League of Nations, in its fourth general report on the treatment of malaria, advocated 0.3 gram per day for adults, administered in three doses of 0.1 gram or two doses of 0.15 gram. The dose for younger individuals is relatively large, children of 12 years of age sometimes requiring a full dose. This is a disadvantage because the dose is large in proportion to weight and the child organism is more sensitive to the drug than the adult.

The drug is primarily excreted in the urine where from 50 to 75 per cent of the total dosage may be recovered. The remaining portion is probably eliminated through the bowel. The drug has been found to be retained in the body over a period of from 36 to 69 days. This is very important because it follows that the dosage should never be repeated under a period of at least one month. The advantages of atabrine as a therapeutic for malaria include:

1. The period of administration is short.
2. The efficiency is at least equal to quinine and in most instances more efficient.
3. In pregnancy the disadvantage of increased uterine contractions noted with quinine is lessened when atabrine is given.
4. It is well borne in quinine idiosyncrasy.
5. It is used in cases of blackwater fever without recurrence of hemoglobinuria which has been so commonly noted after the use of quinine.

Among the disadvantages of atabrine may be listed:

1. The skin may show a yellowish discoloration due to a deposition of the dye under the skin. This is not a jaundice. Anemic individuals are more prone to this discoloration. Purgation during medication might prevent this discoloration.

2. Abdominal colic, nausea, and vomiting may occur. Purgation sometimes prevents these symptoms.

3. Psychosis: Since the advent of atabrine until June, 1939, 70 cases of psychosis have been reported out of 6,316 patients treated with atabrine, an incidence of 0.8 per cent. No evaluation of these cases will be made; other authors have done so and have found that of the 70 cases, probably only a few are the direct result of atabrine. The total number of persons treated with atabrine and reported in the literature from 1932 to 1938 where no psychosis has been mentioned exceeds 40,000; thus psychosis may occur in no more than one out of 500 patients treated with atabrine. C. C. Tur-

ner (1936) describes the psychosis noted in atabrine treated patients as a confusion evolving towards a catatonic type of dementia precox.

4. Peripheral neuritis: This has been reported in seven children who had been given overdoses of the drug.

5. Death: Six cases of death are reported in the literature. In practically every case cited the amount of atabrine given exceeded the dosage recommended by the Malaria Commission of the League of Nations.

As to the untoward symptoms of quinine, Mühlens (1937) found idiosyncrasy to quinine several times. He saw urticaria, edema of the skin and mucous membranes, hemorrhages in several cases, and one fatal case due to a hemorrhage from the nose and bowel. Richardson (1936) reported nine cases of amaurosis and amblyopia following quinine treatment. Faiguenbaum (1938) reported one case of agranulocytosis from quinine.

In regard to some erroneous ideas about untoward symptoms following atabrine treatment, it may be stated:

1. Liver damage has never been demonstrated.
2. Cyanosis has never been reported unless the drug was given with plasmochin.
3. No cases of agranulocytosis are in the literature.
4. Atabrine is not more expensive than quinine. A complete course of atabrine is available for \$1.00. Quinine as recommended over a period of eight weeks costs approximately \$2.00.

Other therapeutic uses of atabrine:

1. Blackwater fever: McNalb and Schwartz (1934) in the Philippines, Goldblatt (1935) in South Africa and Maldonado (1936) in Spain, treated patients with blackwater fever with intramuscular injections of atabrine, claiming good results. The mortality was reduced from 36 per cent to 10 per cent. The drug is given daily intramuscularly in amounts of 0.2 to 0.3 gram. When the symptoms cease, usually in 12 to 36 hours, treatment is continued by mouth. Thus far, we have had occasion to use atabrine in the treatment of blackwater fever only once. In this patient hemoglobinuria disappeared within 30 hours.

2. Giardiasis: In April, 1937, Brumpt reported the results of his experimental study on the effect of acridine dyes upon mice and rats infected with *Giardia lamblia*. A 1 per cent solution of the basic acridine dye cured 80 per cent of his animals. Shortly thereafter Galli-Valerio employed atabrine for the treatment of giardiasis. Since that time 22 authors throughout the world reported 414 cured out of 417 patients with giardiasis treated with atabrine.

#### CONCLUSIONS

1. The dosage of atabrine should be within the amounts advocated and should not be repeated within 30 days.

2. The incidence of psychosis can be greatly reduced if the dosage is kept within the normal limits. Atabrine should not be given to a patient with a previous history of psychic disorders.

3. The incidence of abdominal colic, nausea, vomiting, may be decreased by giving the atabrine with an abundance of food and water.

4. Atabrine should not be given together with plasmochin.

5. Intravenous use of atabrine is not recommended.

#### HUTCHINSON MEMORIAL CLINIC

Meeting of January 10, 1940.

Scientific Session conducted by the Department of Pediatrics, Dr. Robert A. Strong, presiding.

*Introductory Remarks on Still's Disease* (Dr. Robert A. Strong): I think that we are all agreed that the condition to which we broadly refer as the rheumatic state, prevails to a greater extent in the British Isles probably than in any other country. Naturally, investigative work to discover its possible cause has been carried on more extensively in England. In fact, two of the earliest workers to suggest that the streptococcus was the cause of rheumatic fever, were Poynton and Payne. Some of you may recall that it was about 25 years ago when these two workers reported their results from the Great Ormond Street Hospital for Sick Children, in London, and at the time and to some extent even now, their work is regarded as the nearest approach to a solution of the rheumatic problem. The organism which they described, however, failed to fulfill the requirements of specificity.

Many years before Poynton and Payne's work, George H. Still, of the Great Ormond Street Hospital, described a form of chronic joint disease in children, which had characteristics distinctly different from other forms of arthritis. These differences included hepatitis and a splenomegalia, and the joints were chronically swollen without any widespread evidence of acute inflammation, as it is elicited by conventional signs. On palpation, the enlarged joints are not as painful or tender as would be expected from their size and they have a "crunchy" feel and crackle when any attempts at movement are made. In addition, endocarditis very rarely, if ever, occurs.

During a stay in Great Ormond Street some years ago, I had the privilege of seeing a number of cases demonstrated by Still himself. Later, I saw a typical case in New Orleans, which I reported as a part of a discussion on joint enlargements from other causes (*Pan-American Surgical and Medical Journal*, 1:65-70, 1914). Since then, I have seen another typical case, which was under the care of Dr. McIlhenny. It was during the time that McIlhenny was treating rheumatic conditions with the esters of chaulmoogra oil. He did this be-

cause of the fact that in his extensive experience at the leprosarium at Carville, he had never seen arthritis in any form and he believed that the conventional treatment of leprosy with these esters might have been a factor in preventing it. McIlhenny's patient certainly improved during the several years which followed.

Williamson, who received a large part of her early training in the British Isles, and especially under John Thomson, in Edinburgh, has naturally had an opportunity to see a large number of these cases and she will present a case tonight.

*Still's Disease* (Dr. G. Richarda Williamson, Department of Pediatrics): In the land of my birth, we call this condition Still's disease, but in the land of my adoption, a more appropriate name would be Still's type of disease, a form of chronic joint disease in childhood. This type of rheumatoid arthritis in children was first described by Dramantberger, in 1891, and six years later, in 1897, the famous communication, "On a Form of Chronic Joint Disease in Children," by Still, was received. He described the triad: (1) Enlargement of the joints; (2) enlargement of the lymph glands, and (3) enlargement of the spleen. In his series of 22 cases, all showed one or more of these signs, 11 of them having splenomegalia, some having enlarged joints, and some showing only lymphadenopathy. He considered endocarditis rather the exception than the rule in these cases.



It occurs much more commonly in the British Isles than in America. In the twenty years that I have been in the United States, I have seen only three cases.

The disease occurs most commonly between two and five years of age; the youngest case reported was four months. Most authorities consider it to be of infectious origin, and it often follows pneumonia or some other acute illness. Various microorganisms of low grade virulence have been incriminated, the most commonly listed being the *Streptococcus viridans*.

It has been noted that heredity may possibly play a part, as a familial occurrence of the disease has been observed. Climatic conditions are also involved, for it occurs much more frequently in cold, damp climates. Forty-six per cent of Siberian children have had it.

It has been suggested that it may be a manifestation of attenuated tuberculosis; in fact, a form of tuberculous pseudo-rheumatism has been described by Poncet, in France. However, this form usually terminated in ankylosis or tuberculous arthritis. All the patients I have seen had negative Mantoux tests, although many of them showed ankylosis and resembled tuberculous joints.

There is periarticular fibrosis with thickening of the capsule and ligaments and the synovial membrane is vascular and swollen. In a joint opened by Whitman, the synovial membrane was described as being replaced by a soft, red granulation tissue. The cartilages are normal, but may present some pitting at the margins. The adjacent bone often shows rarefaction. Adhesions are often present in joints severely affected.

Pericardial and pleural adhesions may be present. None of the cases I have seen presented evidence of endocarditis, although Still reported two such cases, which, if part of the disease, is of rare occurrence. Amyloid disease of the spleen, liver, and kidneys has been noted in some few cases.

The onset may be acute, but more commonly develops insidiously after an acute illness. The first joints involved are generally the knees, wrists, and ankles, after which the swelling occurs, attacking practically all of the joints. The cervical spine, temporomandibular, sternoclavicular hip and shoulder are less frequently involved. The joints are usually swollen and fusiform in shape. They are never red, never suppurate, and an exudate seldom forms. The joints are usually symmetrically involved. There is pain only with motion. Other physical findings include muscular wasting to a degree greater than to be expected from disuse and contractures, swelling, erythema and glossy skin, slight exophthalmos, chronic fibrous pericarditis, and adhesive pleuritis. The growth of the patient tends to be retarded, but the mentality usually remains alert.

It is often characterized by periods of remission, where the patient regains his ability to walk and motion in the joints may take place without pain. A relapse usually occurs after a few weeks and bed rest becomes a necessity.

Other findings which may or may not be present, are subnormal basal metabolism, psychic changes, subcutaneous nodules (Heberden's nodes), and albuminuria. With regard to the last, in two cases reported by Portis, of Chicago, one died following uremia, and both had albuminuria. At autopsy, amyloid degeneration of the spleen, liver, and kidneys was found.

In my opinion, the prognosis is not good, although Thursfield states that it is better than is generally believed. Improvement was often noticed in Still's cases, after an attack of measles, scarlet fever, or jaundice. The fever accompanying these diseases may have been a factor. With the exception of this case, however, all that I have seen did poorly. The younger the patient at the onset of

the disease, the more unfavorable is the prognosis. Death may supervene after the disease has worn on from three to 12 years. In the patients who do survive, the prognosis is excellent, for the return of function in the involved joints, and in many, the swelling disappears to a great extent.

Still's disease must be differentiated first from other forms of chronic arthritis, and this is often extremely difficult. Chronic periarticular fibrosis following acute rheumatic fever (Jaccoud's chronic rheumatism) must also be eliminated. Finally, the fusiform swelling of the fingers may be confused with either tuberculous or luetic dactylitis, because tuberculosis and syphilis involve the bone.

#### DESCRIPTION OF THE CASE

This patient has improved so much during his stay in the hospital that it is difficult to imagine the picture he presented on admission.

The history is vague. As far as could be determined, he has had swollen joints for about the past 12 months. No history of a preceding acute illness could be elicited, although it is my opinion that he probably had one. There are four brothers and five sisters, none of whom are known to have had the disease. On admission, he appeared emaciated and chronically ill, with markedly swollen, non-painful joints. Movement of the joints, however, produced rather severe pain. He sat quite still and when looking to either side, rotated his entire trunk, leaving the cervical vertebrae stationary. Examination revealed the following positive points: The cervical lymph glands were moderately and painlessly enlarged. The heart was enlarged, but no murmur or irregularity of rhythm was present. No dyspnea or edema was noted, and it cannot be explained why the cardiac enlargement existed. The spleen was palpable, but not excessively large. The finger, elbow, wrist, ankle, and knee joints were greatly swollen and fusiform in shape, but no redness or other signs of acute inflammation were present. Passive motion was present, but produced considerable pain. Upon palpation, a sensation of doughiness was noted, probably due to accumulation of fibrous tissue. As stated above, the cervical vertebrae were rigid.

At present he has regained the use of most of his joints, but the swelling is still present and the muscles of the forearms, arms, thighs, and legs, still show an extreme degree of atrophy. The red blood cell count was 3,800,000 and the hemoglobin 60 per cent, and the white blood cell count was 8,000, indicating a secondary anemia. Urinalysis was negative, and the sedimentation rate was accelerated. The Mantoux test was negative.

The treatment used so successfully in this case will be described by Dr. Levert.

*Treatment of Case of Still's Disease* (Dr. Edward Levert, Resident, Tulane Division of Pediatrics, Charity Hospital): Salicylates were first used in this case of Still's disease more or less as a therapeutic test, and after being given for four or five days without result, were discontinued. It

was thought that typhoid vaccine could be given as a means of fever therapy, so from 10,000,000 to 30,000,000 killed typhoid bacteria were given every four days intravenously. The temperature rose to 104° F. Eight injections were given and instead of improving, the patient appeared worse.

Several years ago, C. I. Reed (Ph. D.) at the University of Illinois College of Medicine, observed improvement of two patients with arthritis, who were being treated for hay fever with vitamin D concentrate. He then reported a series of cases in 1935, in which 20 of 24 rheumatoid cases improved under this treatment. Doses of from 200,000 units to 600,000 units daily were given. The first sign of improvement in some was lessened pain, in others there was improvement in mobility, and in still others, reduction of edema. Nearly all patients showed improvement in nutritive condition, less evidence of vasomotor instability, greater muscular strength, less tendency to fatigue, and improved gastrointestinal function. These signs first appeared in from one week to six months.

Because of these observations, we decided to start this form of therapy on this patient, and so far, the improvement in his condition has been most satisfactory. He was started on daily doses of 50,000 units of vitamin D. Before this form of medication was begun, the sedimentation rate was 18 mm. in 18 minutes. After a period of 10 days, the dosage was increased to 100,000 units daily. Three weeks after starting this therapy, the sedimentation rate was 18 mm. in 44 minutes, and there were definite signs of improvement. There was increased motility in the joints, decreased swelling, and lessened pain. At the present time he is receiving 150,000 units daily and is still improving.

In a review of the literature, there appear to be approximately 185 patients treated in like manner, with 69.8 per cent improvement.

Most of the authors began on dosages of from 100,000 to 150,000 units daily, which they increased by 50,000 units daily every four to five days. When toxicity developed, the dosage was dropped by one to two hundred thousand. The conclusion was that they should receive at least 300,000 units daily (adult). Overdosage resulted in nausea, frequency, lassitude, anorexia, polydipsia, diarrhea, abdominal pain, and vomiting. Brewers' yeast gives relief in most cases, according to Dreifer and Reed.

Initial calcium and phosphorus are usually normal. Massive doses of vitamin D lower high serum calcium and raise low or normal serum calcium to a higher level and after continued administration, will again decrease the calcium level. Calcium level had no connection with improvement. Phosphorus is practically unchanged.

Most of the writers who concluded that vitamin D concentrate was of no value in the treatment of arthritis, gave doses of less than 150,000 units daily (adults).

The only other form of therapy that seems to be

giving results as good as vitamin D appears to be gold salts. It has been used mainly in England. In a review of the literature, 1,537 persons are reported, with 54.1 per cent cured or improved. However, toxic effects in this form of therapy are frequent and serious.

In conclusion, I would like to say that while our patient is showing definite signs of improvement under vitamin D therapy, remissions are quite frequent in Still's disease. Also, at the time of starting this form of therapy, two carious teeth were removed. We think that before we can definitely conclude that the benefit is from vitamin D, we will have to observe him for a further period of time.

*In Conclusion* (Dr. R. A. Strong): I feel that from the appearance of this case, some of the internists will think that we are dealing with a case of rheumatoid arthritis, and I am not unmindful of the fact that in recent literature, the term Still's disease is not widely recognized.

I am sure that some of you may think that we are quite bold in using the large unitage of vitamin D, which Levert describes. We did this, however, with full cognizance that there is such a thing as hypervitaminosis. This was noted when irradiated ergosterol was first used in Continental Europe under the name vigantol and as acterol in this country. Certain toxic symptoms occurred in children and the use of these preparations was discontinued. Experimental work with rabbits was conducted and calcareous deposits in various organs, caused by hypercalcemia, were revealed in rabbits which were given huge doses of irradiated ergosterol. These experiments served to stabilize the human dose and it is now known that the conventional dose can be greatly exceeded without fear of causing hypervitaminosis.

*Introductory Remarks on Hypertelorism* (Dr. Robert A. Strong): Again we go to Edinburgh, where a condition was first described by Greig, in the Edinburgh Medical Journal, in 1924. We have seen four children with this condition, but I think the one who will be shown you tonight more nearly approaches in appearance the first case described by Greig. Little has appeared in the literature since Greig's first communication.

*Hypertelorism* (Dr. Richard P. Vieth, (read by Dr. Sam Powell) Department of Pediatrics): We are presenting these two cases as examples of a rather unusual condition known as ocular hypertelorism. It is a congenital, developmental, cranio-facial deformity characterized by widespread separation of the eyes. In its milder forms it is probably quite common among negroes, whose normally flatter bridge of the nose may make the eyes appear farther apart than normal. Milder forms of the condition present



no symptoms, but the marked degrees of hypertelorism, such as these patients present, are frequently associated with visual disturbances and mental deficiency.

## CASE NO. 1

L. B., a 10 year old colored girl, was first seen in the clinic in May, 1939, complaining of vague abdominal pain of several months' duration. The pain was never severe; there was no nausea or vomiting. Before we could make a positive diagnosis of any abdominal condition, the pains disappeared spontaneously and she has had no more distress. At the time of admission, the patient's mother also stated that the child had difficulty with reading, that she holds her head to one side in bird-like fashion, and seems to use her right eye more than the other.

In the family history, it is of interest that the patient's maternal aunt was supposed to have had a facial deformity, with widespread eyes. There is also a definite suggestion of hypertelorism in the mother. The past history is negative, except for the usual childhood diseases. The patient appears to be of at least average intelligence, although a psychometric examination has not been done. She is in the fifth grade in school, a grade which is in keeping with her age.

Physical examination reveals a well developed, moderately well nourished 10 year old colored girl. All positive points in the physical examination are limited to the head and face. The most striking feature about this patient is the malformation of her face. The forehead is low, with prominent frontal eminences, the left brow being more prominent than the right. The orbits are large and widely separated, the palpebral fissures narrow and almond shaped. The bridge of the nose is wide and flat, with a distance of 50 mm. between the inner canthi. The nostrils are widely separated and flaring, with a slight dorsal groove, which seems to bisect the nose.

Measurements of the skull give a cephalic index of 76.4, which makes the skull mesaticephalic in type. In this respect she differs from the usual case of hypertelorism, in which the brachycephalic skull is the rule. The laboratory data are all negative. X-rays of the skull showed "slight degree of convolitional atrophy with a large sella turcica."

## CASE NO. 2

S. S., a four year old colored girl, shows in addition to the cranio-facial deformity, marked mental deficiency. This patient came to the Clinic because of weakness and failure to walk or talk. She was apparently normal at birth, from the history, but at the age of one year it was noted that she was weaker than would be expected for that age and did not attempt to sit up, walk, or talk. At the present time, she is markedly spastic, drools saliva, and is definitely retarded mentally.

Laboratory data and x-rays of the skull are negative. As in the case of the first patient, she pre-

sents the wide space between the eyes, the distance between inner canthi being 35 mm.

The credit for establishing this condition as a definite clinical entity and for proposing the name "ocular hypertelorism," belongs to Greig, of Edinburgh. In 1924, he described two patients he had observed over a period of several years. One of his patients died of tuberculosis and he was able to make an exhaustive study of the macerated skull. He states that the most striking features of the skull are: (1) The enormous breadth of the anterior nares, the opening being quadrilateral instead of pyriform; (2) the great breadth of the cribriform plate, and (3) the small size of the great wings of the sphenoid, with a disproportionate largeness of the small wings.

Before Greig, cases whose illustrations seem to present hypertelorism were described as oxycephaly. However, the characteristic feature of oxycephaly is the lack of formation of the sutures throughout the skull, whereas in hypertelorism, all the sutures are present, well formed, and the deformation of the cranial cavities in no way corresponds to oxycephaly.

According to Reilly, there are possibly four different forms of this syndrome: (1) Facies only; (2) facies and mental deficiency without familial tendency; (3) facies and familial tendency without mental deficiency, and (4) facies and mental deficiency and familial tendency.

A case of hypertelorism will be recognized at birth because of the peculiar facies. The face appears small, the cranium large, the nose has a broad bridge and is generally retroussé. The eyes have their horizontal axes directed laterally and strabismus, usually external, unilateral or bilateral, is the rule. While the height and circumference are usually normal, the skull length is shortened and the occiput flat, giving a brachycephalic type.

Physical development may be normal or retarded. Mental deficiency may or may not be present and other deformities may be found, such as syndactylism, high palate, undescended testes, acrocyanosis, impairment of visual acuity, partial or total blindness without optic atrophy.

X-ray examination revealed the wide separation of the orbits and large anterior nares. Intersutural bones may be present or the sutures incomplete with absence of digitations.

Hypertelorism is the result of a developmental anomaly of the sphenoid bone. Dr. Cummins has kindly consented to discuss this condition from the standpoint of embryology.

*Discussion* (Dr. Harold Cummins, Department of Anatomy): The developmental history of hypertelorism: The external anatomic characteristics of hypertelorism include the wide setting apart of the eyes, a broadened nose, which in the most extreme cases may present a median furrow dividing its right and left halves, as well as other less conspicuous departures from the average normal

conformation of the face and cranial vault. The skull shows corresponding deviations from normal, the orbital fossae being widely separated, with marked widening of the nasal aperture, nasal bones, and cribriform plate. These and other abnormalities of the skull might be considered in detail, but for the present purpose it is necessary only to state that the whole picture, the nature of which I have been asked to discuss, is one of developmental arrest.

Only recently recognized as a pathologic entity (Greig, 1924), hypertelorism has not yet received the attention which it merits from the standpoint of congenital history. Certainly it is questionable to attribute this abnormality, as Greig and Washington (1936) have done, to a defect in the fetal cartilage anlage of the sphenoid bone. While the sphenoid is clearly abnormal, its role is not that of an initiator of defect, but instead it is merely a participant in a complex of defective processes which undoubtedly are in action before the cartilaginous elements of the sphenoid have been formed. If some cephalic structure must be singled out as the prime mover, it would be more reasonable to give first claim to the brain, together with the eyes, which develop in part from it, and still more to the point, is emphasis of the fact that the combined maldevelopments are the end result of mutual inter-regulation of all the differentiating head structures. In any event, no such descriptive explanation represents truly the etiology of hypertelorism, which in different cases may prove to involve either hereditary factors or disfavoring influences in early embryonic development which, according to the time of their effects on the embryo might as readily have led to other varieties of malformation, as they actually do when, as in some cases, other abnormalities occur in combination with hypertelorism.

These illustrations of the faces of embryos of five, six, and eight weeks may enlighten the embryologic background of hypertelorism. In embryos of five and six weeks, the eyes are directed laterally, and the several separate processes which are to unite in the construction of the face are clearly defined. The embryo at eight weeks shows the eyes in a more anterior position, yet still widely removed from each other, and while the originally separate processes of the face are now merged, it will be noted that the duplex origin of the nose is still evidenced. In embryonic mold, this is the face of a severe degree of hypertelorism. Consider the effect of interrupted differentiation at this stage, the head continuing to grow, but with the further steps in normal transformation of the face being halted. It is clear that arrested differentiation in the early prenatal history of these cases is the immediate developmental explanation of their origin, the severity of affection varying according to the period at which interference with normal behavior of the differentiating head structures is introduced. In any arrested superficial differentiation the con-

currently developing deep structures would be affected likewise, the face being chosen for illustration because of its simplicity. Though more grave in its consequences, particularly in the severe cases where cerebral and ocular involvements lead to serious functional impairment, the arrest which occurs in hypertelorism is in principle no different from the regionally more limited arrests which give rise to other unfinished structural relationships such as harelip and cleft palate.

*Introductory Remarks on Diabetes Insipidus Following Brain Abscess* (Dr. Robert A. Strong): I think that anyone who has attempted to fathom the function of the pituitary gland has realized that it is a very difficult thing to do. Situated as it is, almost within the sella turcica, and intimately related with important structures of the brain, which either form a part of it or lie immediately adjacent to it, its function has been found to be multiple and complex. Its anterior lobe functions altogether differently from the posterior lobe. Whenever its function is impaired in part or as a whole, varied conditions may develop. For this reason, I think that the case which will be presented to you by Dr. Russ will be especially interesting.

*Diabetes Insipidus Following Brain Abscess* (Dr. J. D. Russ, Department of Pediatrics): The history of this patient will give the best idea of the etiology of the case, which is unusual. This boy is 12 years old, and his outstanding complaints were lethargy, indifference, excessive polydypsia, excessive and extremely frequent polyuria, obesity, and failure to grow.

He is the second child in his family; birth history and feeding habits are normal. He held his head up at two months, sat up at five months, talked and walked at one year. He had smallpox, diphtheria, and whooping cough during his first five years, and in June, 1932, when he was seven years old, he had measles. One month after his attack of measles he had a severe upper respiratory infection, which developed into an otitis media (left) and several days later an acute mastoiditis appeared. Mastoidectomy was performed and convalescence was somewhat stormy until two months later, when a temperature of 105°, plus acute pain over the right lateral malleolus, was observed. An operation for acute osteomyelitis was performed. Convalescence was uneventful.

One year later, in July, 1933, otitis media and mastoiditis again appeared and after another mastoidectomy, another osteomyelitis occurred, this time in the left fibula. Osteotomy was performed and convalescence was rapid. One year later, in June, 1934, another mastoiditis in the same mastoid occurred and mastoidectomy again was performed.

In February, 1935, eight months after the mastoidectomy, the child suddenly complained of acute frontal headache, his temperature began to rise until it reached 106°, and a septic type of fever

followed; convulsions appeared, as did delirium, coma, and cephalic hyperextension. He was rushed to the hospital and a diagnosis of left mastoiditis and brain abscess was made. Mastoidectomy was performed and the abscess drained. After a stormy course of two months, the child became quite well and was discharged. In the next few months the parents noticed that the child was becoming much fatter, although his appetite was poor and that he drank increasingly excessive amounts of water, accompanied by excessive urination. He also failed to grow. Enuresis, of four to six times nightly, occurred for the first time in the boy's life. This condition persisted with no alleviation until 1938, when the mother took him to Touro Infirmary. Here a diagnosis was made of pituitary deficiency, and the boy was put on antuitrin-G and thyroid. He lost 12 pounds, but failed to grow. He was then changed to antuitrin-S, and proceeded to grow three and a half inches in six months. No change in the excessive urination was seen. Pitressin was given, but the boy had severe vomiting with each injection and the drug had to be discontinued. For some reason, the mother discontinued treatment early in 1939, and was not seen again by a physician until the present admission to this Clinic.

The only important point in his family history is that the mother is short (four feet, ten and a half inches), and the father is also smaller than normal (five feet, five inches). Numerous cousins are shorter than normal.

The patient was admitted to the Clinic on November 13, 1939. Any improvement in the boy's condition had stopped abruptly upon cessation of treatment early in 1939. Increasing lethargy and sleepiness had been noted, particularly in the past four months. He slept whenever possible, and was unable to maintain passing grades in school because he was too sleepy to study. At that time he was going to sleep regularly at 7 p. m. and was awakened with difficulty at 7 a. m. Polydypsia had become increasingly severe and frequent, as had the polyuria. When he was awakened in the morning, his first act was to drink from 2,000 to 3,000 c. c. of water. His total daily intake varied from 30,000 to 34,000 c. c. of fluid and his normal output was from 26,000 to 30,000 c. c. He wet the bed as much as 12 times a night and the bed clothes were changed without being able to awaken the boy. His height had remained unchanged in the past year and he had regained the 12 pounds, and at that time was fatter than before.

The boy sits quietly in his chair and answers questions intelligently and cooperatively. He submits to all examinations stolidly. A physical examination reveals that his height is 49¼ inches and his weight, 65½ pounds. He has a blood pressure of 112/80; basic pulse rate at rest, 68; and temperature 98.4°. His head is normal in contour and the hair is plentiful, but coarse and dry. An ophthalmologic examination reveals normal fundi. There are large scars posterior to the left pinna

over the left mastoid, and deafness is present in the left ear. His hearing is normal in the right ear. A tonsillectomy has been performed. His oral hygiene is excellent. The heart is normal in size and shape, regular in rate and rhythm, and there are no murmurs. The lungs are clear and resonant, with no rales and no abnormalities of breath sounds.

The child is excessively obese and there are rolls of fat over the lower abdomen and over the crest of both ilia. An overhanging roll of fat is over the penis. There are no areas of pain, tenderness, or rigidity, and no palpable organs or masses. The penis is very small, being about the size seen in a normal three year old boy. The scrotum is also very small, with masses of fat held within it. The boy has a pseudo-cryptorchidism. The testes are felt at times in the scrotum and at other times are palpable in the lower portions of the inguinal canals. The upper thighs are very fat. A long scar is present over the lateral aspect of the left leg and a small scar over the lateral aspect of the right malleolus. His reflexes are normal and no abdominal reflexes are present. X-ray of this patient reveals normal sella turcica, and a bone developmental age of seven years.

The boy was put on whole pituitary extract, gr. 6 by mouth and thyroid extract, gr. 1, twice a day. In eight weeks, January 10, 1940, the boy has attained a height of 49¾ inches, having gained half an inch, and a weight of 58½ pounds, which shows a loss of seven pounds. His noticeable obesity has disappeared, and he is now no longer sleepy, but plays well and long, and his school grades are markedly improved. There has been no change in the polydypsia or polyuria. His blood pressure is now 105/70 and his basic pulse at rest is 90.

*Introductory Remarks to Lead Encephalopathy* (Dr. Robert A. Strong): We have presented a case of lead poisoning at a former staff meeting, because we have had several in our clinic, but I offer no apology for presenting another one. Attention cannot be called to this condition too often, because the diagnosis is usually made when we are "lead conscious." Lead poisoning is either on the increase or it is being recognized more frequently than formerly. Since the roentgenogram has been an aid in diagnosis, suspicions can be confirmed more readily. Formerly, lead poisoning was more frequently met in those whose occupation requires them to be constantly exposed to lead. In recent years, however, this has not been the case. Lead poisoning may be acquired by inhalation as well as by ingestion. Very recently (Jephcott, C. M.: *Canad. Pub. Health J.*, 28:391, 1937; Ruff, H. W. and Fluck, W. Z.: *Am. J. Pub. Health*, 29: 1149, 1939) some shades of colored chalks used in school rooms have been discovered as being capable of causing lead poisoning by the dust which emanates from them. The yellow, orange, and green colors were found to contain large amounts of lead chromate. Again, eight years ago in Balti-

more, a great many negroes suffered from lead poisoning as a direct result of burning discarded automobile battery boxes, which they collected from the city. More than 26 cases of poisoning from similar sources were reported from Nashville, Tennessee, a few years later.

Lead encephalopathy has been recognized for many years, but facilities exist today by which it can be more easily diagnosed, and Dr. Rodriguez will now present a case of this condition.

*Lead Encephalopathy* (Dr. Adrian Rodriguez-Macedo, Department of Pediatrics): This two year



old colored male was admitted on April 27, 1939, with a chief complaint of convulsions three times a day for the past two months. The onset was sudden, the patient falling and occasionally hurting himself. They occurred two or three times daily, were of moderate severity, and sometimes left the patient rather dazed. Although the convulsions were generalized, there

was often a residual limp of the right leg.

The family history and past history were essentially irrelevant.

Examination revealed a well developed, well nourished boy, who, although not acutely ill, appeared lethargic, and was constantly in a knee-chest position. The temperature on admission was 101°, but was normal the next morning. The only other finding was evidence of a very mild respiratory infection.

The laboratory work revealed nothing significant, except for some increase in the spinal fluid pressure. The calcium was 9.5 mg. X-rays of the skull and long bones were reported as showing no bone pathology and no pressure defects.

Neurologic consultation stated "No significant findings except for an apparent preference for the prone position, with the knees flexed. Impression: convulsive state—nature at present undetermined." The child had an uneventful course in the hospital and was discharged eight days after admission.

We saw him on August 26, 1939, when he was readmitted to the Ward in a semicomatose condition. The mother stated that for the past month, he had been having mild convulsions and twitchings of the right side, but until the present time, these have not been severe enough to require hospitalization.

The intern's note at this admission reads as follows: "Patient apparently comatose, although breathing at normal rate. The eyes are deviated to the left with a slight horizontal nystagmus. The pharynx is slightly red; gums in good condition. Reflexes: physiologic on the left side. On the right, the arm and leg are flaccid, and show a diminution of all tendon reflexes. Abdominal and cremasterics absent. Babinski positive."

Laboratory work at this admission showed 3,900,000 red blood cells, hemoglobin 65 per cent, 10,800 white blood cells. Spinal fluid was under increased pressure, but negative for globulin, and the cell count was not increased. The urinalysis was negative. The Mantoux test was negative.

In spite of large doses of sedatives, the child continued to have mild convulsions and twitchings of the right side, and at times of both sides. The eyes deviated to the right on one occasion and to the left on another. Incontinence of urine and feces was noted.

During this time, the neurologic department was again consulted and an encephalogram was advised. Before this could be done, however, the possibility of lead poisoning was thought of, x-rays of the long bones were taken, and heavy deposits of lead were seen at the ends of the diaphyses.

The mother was then questioned as to the possible sources of lead and very readily admitted that the boy had been chewing on anything that he could get hold of since he had been able to chew. This included painted toys, cheap yellow pencils, and possibly the paint off the front porch. No other possible source of lead could be elicited, and x-rays of the patient's little sister were entirely negative.

The child was put on a diet of adequate calcium content, supplemented by viosterol, and 10 c. c. of a 10 per cent solution of disodium phosphate was given orally three times a day. The sedatives were discontinued, the patient observed for two weeks longer and then discharged.

He failed to follow the regimen advised, and returned to us a month later with the complaint that the convulsions had not entirely ceased. However, after five days' observation in the ward, he had no convulsions, and the only findings were an exaggeration of the tendon reflexes of the right lower extremity, very occasional stippling of the red blood cells, and slight anemia.

He was discharged to the outpatient clinic only to be readmitted a few days ago because the convulsions had recurred. He has had only one convulsion since admission. This was of moderate intensity and generalized.

I believe that this case shows us most of the signs and symptoms that characterize lead poisoning in children. First, we see it occurring at the age of most rapid dentition (one to two years) and that at which there is the greatest tendency to put things in the mouth. Secondly, we see that the source differs somewhat from the usual source in adults; and thirdly, that the child responds violently with an encephalopathy instead of a peripheral neuritis, although both conditions might occur. A respiratory infection or an acidosis is the usual precipitating factor. Furthermore, he showed most of the symptoms, such as restlessness, irritability, convulsions, stupor, coma, vomiting, periodic anorexia, constipation, diarrhea, and apparently abdominal cramps.



You might be surprised to hear that the lead lines on the gums and stippling of the red blood cells so frequently observed in adults, were not found in this patient. However, this is rarely found in children, according to McKhann, Vogt, and other observers.

Diagnosis is made on x-ray, by the heavy bands of increased density at the growing ends of the long bones and the margins of the flat bones. This picture is most often confused with that of healing rickets, although in the latter, other evidences of the disease are usually present. Somewhat similar lines might also be seen in cases of arrested growth, vitamin A deficiency, or after the ingestion of bismuth, strontium, or phosphorus.

It should be kept in mind that as in our patient's first admission, if the pictures are taken while the lead is still circulating in the blood stream, and not yet deposited in the bones, the x-rays might appear perfectly normal. At such a time, a spectroscopic examination of the blood would establish the diagnosis.

Analysis of the stools and especially of the urine is also of value, but only if a quantitative determination is made, as 0.1 mg. of lead per liter is often found in normal urine.

Lastly, the patient presents, I believe, the prognosis of a great many children who survive lead encephalopathy; that is, the suggestion of cerebral injury of a permanent nature. This is easily understood, for at autopsy, the brain appears markedly swollen. Permanent damage might result from pressure effects and interference with circulation, or possibly from a specific toxic effect.

The question of treatment remains unsettled, but following the work of Schelling, and later Kramer, Levinson, and others, the patient was given a liberal amount of milk, viosterol, and disodium phosphate. The most widely used treatment today, is not that, but one consisting of high calcium in addition to large quantities of milk. This follows the

work of Aub and his co-workers, who pointed out that lead is absorbed, transported, and excreted, much as is calcium, so that, in general, factors which influence calcium metabolism, might be expected to have an influence on lead. Schelling, however, found that calcium not only did not relieve the symptoms in rats, but aggravated them. Apparently the excess of calcium combines with phosphates in the intestinal tract to form insoluble calcium phosphate, and the fetal loss of phosphorus is increased. The blood serum is thus deprived of soluble phosphates necessary to precipitate the soluble lead iron and facilitate its deposition in bone or its elimination as insoluble lead phosphates. Schelling attributed Aub's success in cases of acute lead poisoning to the fact that he used large quantities of milk, which, besides calcium, contain an abundance of phosphorus.

In addition to the specific treatment, general anticonvulsive measures should be instituted, large doses of sedatives may be administered by vein, rectum, or orally. Hypertonic glucose intravenously is also of benefit. Magnesium sulphate, although advocated in many textbooks, I believe should not be used in cases of lead poisoning. Schelling has shown that it increases the toxicity of experimental animals and others have shown that magnesium hinders calcification probably by increasing solubility of insoluble phosphorus compounds.

I have not mentioned deleading, as it is agreed by most clinicians that it is dangerous in acute cases of lead intoxication, as it may release the lead from the tissues into the blood and cause severe symptoms of intoxication and even death. Danger of recurrence of symptoms of lead poisoning gradually subsides, due to the spontaneous elimination of the metal.

In conclusion, I might say that lead encephalopathy is only going to be diagnosed by those who keep the possibility in mind in all cases of convulsions.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### C A L E N D A R

February 1. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

February 7. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.

Hutchinson Memorial Clinic Staff, 8 p. m.

Mercy Hospital Staff, 8 p. m.

February 8. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

Board of Directors, Orleans Parish Medical Society, 8 p. m.

February 12. Orleans Parish Medical Society, 8 p. m.

February 13. Eye, Ear, Nose and Throat Society, 8 p. m.

February 14. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.

Touro Infirmary Staff, 8 p. m.

- February 16. I. C. R. R. Hospital Staff, 12 noon.  
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- February 19. Hotel Dieu Staff, 8 p. m.
- February 20. Charity Hospital Medical Staff, 8 p. m.
- February 21. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Charity Hospital Surgical Staff, 8 p. m.
- February 23. L. S. U. Faculty Club, 8 p. m.
- February 27. Baptist Hospital Staff, 8 p. m.
- February 28. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
French Hospital Staff, 8 p. m.
- February 29. Joint meeting of The Orleans Parish Medical Society and The New Orleans Graduate Medical Assembly, 8 p. m.

During the month of January, the Society held its annual Installation Meeting and one scientific meeting. At the Installation Meeting held January 8, the following program was presented:

Invocation—Rev. Girault M. Jones, Rector  
St. Andrew's Episcopal Church.

The Cooperative Movement:

Theodore W. Bethea, Attorney at Law.

Address of Retiring President:

Dr. Cassius L. Peacock.

Address of President-Elect:

Dr. Gilbert C. Anderson.

Installation of Officers, 1940

Dr. Gilbert C. Anderson.....	President
Dr. Edmund L. Leckert.....	First Vice-President
Dr. Andrew V. Friedrichs.....	Second Vice-President
Dr. Daniel J. Murphy.....	Third Vice-President
Dr. Edwin L. Zander.....	Secretary
Dr. Edwin H. Lawson.....	Treasurer
Dr. Donovan C. Browne.....	Librarian

Additional Members Board of Directors

Dr. Henry B. Alsbrook

Dr. Max M. Green

Dr. Cassius L. Peacock

Dr. Zander presented flowers to Mrs. Anderson.

A very nice reception followed the meeting. This was in charge of the Woman's Auxiliary to The Orleans Parish Medical Society.

The following program was presented at the scientific meeting held Monday, January 22:

#### SYMPOSIUM ON PNEUMONIA

Pathology of Pneumonia: Dr. Andrew V. Friedrichs.

Diagnosis of Lobar Pneumonia: Dr. Chaillé Jamison.

The X-ray Diagnosis of Pneumonia: Dr. M. D. Teitelbaum.

The Specific Treatment of Pneumococcal Pneumonia: Dr. J. O. Weilbaecher, Jr.

Annual reports for 1939 of officers and committees were presented at this meeting.

Drs. John P. Leake and Henry J. Otto were elected to Honorary Membership.

The following doctors were elected to Active Membership: Drs. Joseph A. Estopinal, Paul L. Marks and Robert S. Munger.

#### NEWS ITEMS

Dr. Morell W. Miller presented an address before the Allen Parent-Teacher Association on January 9. His subject was, "Tuberculosis in Relation to the Health of Today's Children."

Drs. C. Grenes Cole, Nicholas K. Edrington and Paul T. Talbot attended the annual meeting of the St. Tammany Parish Medical Society on Thursday, January 4, in the interest of the Louisiana State Medical Society.

Newly elected officers of the Hotel Dieu Staff were installed at a dinner held Monday, January 15. These officers are Dr. Lucien A. LeDoux, president; Dr. Daniel J. Murphy, vice-president; Dr. C. E. Gorman, secretary-treasurer. Members of the executive committee of the staff are Dr. LeDoux, Chairman; Dr. Murphy, vice-chairman; Dr. Gorman, secretary-treasurer; Drs. C. Grenes Cole, George J. Taquino, William A. Gillaspie, Monte F. Meyer, Pressley A. Kibbe, Cuthbert J. Brown, Louis A. Monte and Edwin A. Socola.

The following officers of the Mercy Hospital Staff for 1940 were installed at the annual dinner held January 9: Dr. Ramon A. Oriol, president; Dr. H. Ashton Thomas, vice-president; Dr. Percy A. Phillips, secretary; Dr. Christopher F. Bellone, treasurer; and Drs. John J. Irwin and Theodore F. Kirn, members of the board of directors. Dr. Irwin is retiring president.

Sir James Purves Stewart, well-known British neurologist and writer, visited New Orleans on January 8 and 9. He had just completed a series of lectures in South America and stopped here on his way to London by way of New York. He addressed the students and faculty of the Tulane University School of Medicine on "Euthanasia."

Dr. Edward Churchill, John Homans Professor of Surgery at Harvard University Medical School was the guest speaker at the annual meeting of the Stars and Bars Chapter of Alpha Omega Alpha at the Hutchinson Memorial on Monday, January 15.

TREASURER'S REPORT

Actual book balance 11-30-39.....	\$3,625.51
December credits .....	\$2,035.27
<hr/>	
Total credits .....	\$5,660.78
December expenditures .....	\$1,561.29
<hr/>	
Actual book balance 12-31-39.....	\$4,099.49

LIBRARIAN'S REPORT

In connection with the December report, a summary of the work of the Library is given for purposes of comparison. The Library has loaned to doctors during December, 772 books and journals, with an additional 886 items to students for overnight use, bringing the total for the month to 1,658. It is interesting to note that for the year 1939, 11,648 books and journals have been loaned to doctors, approximately two books a month to each active member of the Society. This total is 981 more than the number of items loaned to physicians in 1938 and 2,371 more than the circulation to physicians in 1937. The circulation to students for 1939 totals an additional 9,462, bringing the total number of books loaned during the year to 21,110.

The Library has been increased by 80 volumes during December, of which 50 were received by binding, 11 by gift, 16 by subscription and 3 from the New Orleans Medical and Surgical Journal. A notation of new titles of recent date is given below. For the year, 1,114 volumes have been added to the collection bringing the total number of books in the Library on December 31 to 24,236. Of the volumes added during the year, 433 were received by binding, 517 by gift, 35 by subscription and 129 from the New Orleans Medical and Surgical Journal. The Library received by subscription and gift more than 250 medical journals.

The reference service given by members of the staff of this Library to the profession is worthy of particular mention, since this is a field entirely omitted in many medical libraries, doctors being

required to gather all their own references. Our Library staff during 1939 has collected material on 105 different subjects, at the particular request of physicians; all of this in addition to calls for specific titles and for needs which could be filled at once by books and by use of the card catalogue.

The out-of-town membership in the Library, established late in 1938, is still more than maintaining itself without cost to the society. Seventeen physicians have availed themselves of this extension service, and sufficient supplies are on hand to carry the service through 1940. For use in this work a collection of over 10,000 reprints and pamphlets, of dates ranging from 1930-39, has been indexed and filed for immediate use. This file of recent reprints is being enlarged as rapidly as possible and the reprints and unbound duplicate journals are used almost exclusively for out-of-town loans. In this way, carriage charges on the package libraries are kept at a minimum and at the same time our bound journal files are retained in the library for the use of members of the Society.

Miss Marshall represented your Library at the annual session of the Medical Library Association in June, for the thirteenth consecutive year, and was made Chairman of the Executive Committee of the Association. Representation at these meetings enables us to establish interlibrary relations of inestimable value to our own Library.

NEW BOOKS

- Hamblen, E. C.: Endocrine Gynecology, 1939.
- Faust, E. C.: Human Helminthology, 1939.
- Johnston, T. B.: Synopsis of Regional Anatomy, 1939.
- Osaka Imperial University: Collected Papers, 1938.
- Association of American Physicians: Transactions, 1937.

Edwin L. Zander, M. D.,  
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

New Orleans Graduate Medical Assembly	February 26-29, 1940	New Orleans
Louisiana State Medical Society	April 22-24, 1940	New Orleans

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in March	Jackson
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

## THE PRESIDENT'S LETTER

Dear Members:

The editor has requested that there be a monthly letter in the Journal from the president, so if you should tire of seeing a letter each month, either blame it on the editor, or, as the other alternative, turn the page. I shall attempt to make the letter a monthly affair, until either there are sufficient requests to stop, or the editor refuses to put them in the Journal.

On December 18, I went to the neighboring parish, Avoyelles, to attend their regular monthly meeting. Dr. Goldberg, of New Orleans, spoke on "Some Common Problems in Urology," and made a most interesting talk. The president was called upon to make a few remarks, and could not help but recall that at almost every program he has heard within the past ten years, some phase of urology was discussed. Either the profession is becoming more "urology conscious" or there is a concerted effort on the part of urologists to educate the profession in urology. There could be worse things to happen to both practitioners and urologists than for all to become better posted about the developments in this specialty.

I want to call the attention of the Society to the Avoyelles Society, and especially to the attention of the smaller societies. This society has been in continuous existence for over 50 years, and has contributed one President of the State Society, Dr. C. J. Ducote, and many other valuable workers. The Councilor for the Eighth District is Dr. Walter Couvillion, of Marksville. The membership consists of 19 men, all general practitioners, and all active. The meetings are held quarterly, at the home of a member, and the members are entertained with a supper. The people of Avoyelles are largely Creole, and are probably the best cooks in the world; at least that is my opinion, and the suppers are something one will always remember. Should one get an invitation to visit the Avoyelles Society, go by all means. There is another remarkable fact: Dr. R. G. Ducote, of Bordelonville, did not miss a meeting of the society for 20 years, a most remarkable feat for one so busy as he, and doing general practice. Dr. Ducote is President of the Eighth District Medical Society, and is going to entertain that society at his home in March.

On December 20, the ladies of the Auxiliary to the Rapides Parish Society entertained their husbands at a Christmas party. I was asked to act as Santa Claus, and with reinforcements, such as pillows and false face, made a fair imitation of the genial saint, and distributed the presents. I hope that the other societies are blessed with an active and interested Woman's Auxiliary as we have in Rapides.

On January 8, we held the regular Founders' Day Banquet of the Rapides Medical Society, honoring the men who started our present society. This society has been in existence for almost 50 years, and there are three living charter members,

two still in active practice in Alexandria. The ladies were invited and made the affair doubly enjoyable. Dr. O. W. Bethea, of New Orleans, was the guest speaker, or orator, and chose for his subject "The Sixth Wonder, or Why Do Women Marry Doctors?" Every one who knows Dr. Bethea is well acquainted with his forensic ability, and it goes without saying, that every one thoroughly enjoyed his talk. To me, it was almost like again being in his class at Tulane.

It was with regret that I was not able to attend the annual banquet of the St. Tammany Society, held on January 4, but there was an extra number of babies due in my practice at the time, and I was unable to be away during that week. It has been my plan to visit as many of the component societies as possible, but as my practice is that of a "country doctor," often there are patients who keep me at home. It is necessary to attend to my practice, or the wife and children might have to go on relief.

On January 12, I had a letter from Dr. M. D. Hargrove, of Shreveport, Chairman of the Committee appointed by the Executive Committee to smoothe out the plans submitted by the Committee on Venereal Disease, enclosing a copy of the present plan to be submitted to the Executive Committee for final action. Dr. Hargrove's committee stress that final decisions as to whom shall receive free treatment shall be up to the members of the parish society where the work is being done—as is should be, in my opinion.

January 16 was election day, and the duties of citizenship were attended to, voting for the men that I thought best qualified for the offices for which they were aspiring. Voting is practically all the political activities that your president indulges in.

With best wishes, and hoping to see every member in New Orleans in April,

Sincerely,

D. B. Barber, M. D.

## THE ANNUAL MEETING

The annual meeting of the Louisiana State Medical Society will be held in New Orleans, the medical center of the South, April 22-24, 1940. Dr. H. Ashton Thomas has been appointed Chairman of the Committee on Arrangements. He has gathered an excellent staff of co-workers, who together with him will leave no stone unturned to make this meeting one of the best ever held in the history of the Louisiana State Medical Society.

The program chairmen have been fortunate in selecting an excellent group of prominent speakers who will present papers of scientific interest. The scientific exhibits will be of exceptionally high order. The various subcommittees on arrangements are working diligently toward making the stay of the visiting physician a most enjoyable one, both scientifically and socially.

The social program will be only as New Orleans can arrange one. All members should plan to come to the medical center of the South, America's Most Interesting City. The ladies are cordially invited—the local Women's Auxiliary is expecting them. Come early for the meeting. A hearty welcome is assured all visitors.

Lawrence H. Strug, M. D., Chairman,  
Publicity Committee.

#### OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting was called to order at 7:45 p. m. by Dr. D. T. Milam, President. The minutes of the meeting of December 14, 1939, were read and Dr. Gray moved that the minutes not be adopted until the question of a delegate was settled.

Scientific Session: Dr. D. M. Moore presented a paper, "The Chronic Abdomen," which was profusely illustrated with lantern slides.

Dr. Frank A. Wood presented a paper, "Recent Advances in the Treatment of Burns," which was discussed by Dr. J. Q. Graves.

The President then declared that there was a vacancy for a delegate and alternate for 1940-41 and that nominations were open. Dr. Hamilton nominated Dr. G. W. Wright; seconded by Dr. J. Q. Graves. Dr. Titcher moved that nominations be closed; seconded by Dr. Graves. Dr. Gray nominated Dr. W. E. Jones as alternate; seconded by Dr. Hamilton. Dr. Graves moved that nominations be closed; seconded by Dr. Hamilton. Dr. Moore moved that the secretary be instructed to cast a unanimous ballot for Drs. Wright and Jones; seconded by Dr. Graves and passed without a dissenting vote. Dr. G. W. Wright was declared delegate for 1940-41 with Dr. W. E. Jones as alternate. The other delegates are Dr. F. C. Bennett, with Dr. D. M. Moore as alternate, for 1939-40 and Dr. John Snelling, with Dr. M. W. Hunter as alternate, for 1940-41.

Dr. Gray suggested that the secretary be instructed to have copies of the constitution and by-laws of the society made and sent to each member; he also suggested that a better way of keeping records be found. Dr. Milam suggested that a file be made of each member which should contain all pertinent data, such as number of meetings attended, papers presented and honors received. A resumé of each member should be prepared by himself, and this should be supplemented from time to time by the secretary.

Dr. Milam announced that he would appoint his various committees within the next few days and that members would be notified prior to the next meeting.

The question of new members was then brought up. Dr. Gray moved that, in view of no negative report by the membership committee, the applications of Drs. Frost and Smith be voted on by the society. A secret ballot was taken and neither one received a dissenting vote. Drs. W. L. Smith and

Russell H. Frost were declared members of the society.

A letter from the Louisiana State Medical Society asking for a list of physicians whose practice was confined to internal medicine was read and those physicians were asked to notify the secretary of their names.

Dr. Gray moved that the minutes of the meeting of December 14, 1939, be adopted; this was seconded by Dr. Moore and passed.

Dr. Graves announced the death of Dr. J. C. Sartor of Rayville this afternoon and moved that the secretary be instructed to write a letter of sympathy to the family; seconded and passed.

Dr. Gray reported that the Farm Security Administration has raised the minimum to \$14 a year for each family, as requested by the society, and that the committee reports favorably and has accepted the plan. Dr. Moore moved that the report be accepted and the society ratify the action of the committee; this was seconded by Dr. Hamilton and passed.

L. L. Titcher, M. D., Sec.

#### COMPONENT SOCIETY OFFICERS

1940

##### CALCASIEU PARISH

President: Dr. J. Y. Garber, Lake Charles.  
Vice-President: Dr. A. L. Clark, Iowa.  
Secretary-Treasurer: Dr. Eleanor Cook, Lake Charles.  
Delegates: Drs. Ben Goldsmith and Stakely Hatchette, Lake Charles.  
Alternates: Drs. C. V. Hatchette and C. O. Frederick, Lake Charles.

##### CLAIBORNE PARISH

President: Dr. J. E. Batchelor, Haynesville.  
Vice-President: Dr. P. Gibson, Homer.  
Secretary-Treasurer: Dr. C. O. Wolff, Haynesville.  
Delegate: Dr. J. W. Featherston, Homer.  
Alternate: Dr. B. L. Stinson, Homer.

##### EAST BATON ROUGE PARISH

President: Dr. C. O. Lorio, Baton Rouge.  
Vice-President: Dr. J. J. Noto, Baton Rouge.  
Secretary-Treasurer: Dr. W. S. Slaughter, Baton Rouge.  
Delegates: Drs. J. J. Noto, Carl Weiss, U. S. Hargrove, Baton Rouge.  
Alternates: Drs. B. E. Nelken, J. W. McLaurin, C. H. Voss, Baton Rouge.

##### LAFAYETTE PARISH

President: Dr. J. O. Duhon, Lafayette.  
Vice-President: Dr. E. H. Kent, Youngsville.  
Secretary-Treasurer: Dr. E. E. Guilbeau, Jr., Lafayette.  
Delegate: Dr. W. J. Yongue, Lafayette.  
Alternate: Dr. L. J. Sonnier, Scott.

##### LAFOURCHE PARISH

President: Dr. G. R. Jones, Lockport.  
Vice-President: Dr. P. H. Hanley, Golden Meadow.

Secretary-Treasurer: Dr. P. J. Dansereau, Thibodaux.

Delegate: Dr. C. J. Barker, Thibodaux.

Alternate: Dr. G. R. Jones, Lockport.

#### MOREHOUSE PARISH

President: Dr. W. V. Garnier, Bastrop.

Vice-President: Dr. P. H. Herron, Oak Ridge.

Secretary-Treasurer: Dr. F. B. Ogden, Bastrop.

Delegate: Dr. W. A. Rodgers, Bastrop.

Alternate: Dr. R. B. Leavell, Bastrop.

#### OUACHITA PARISH

President: Dr. D. T. Milam, Monroe.

Vice-President: Dr. H. E. Guerriero, Monroe.

Secretary-Treasurer: Dr. L. L. Titcher, Monroe.

Delegates: Drs. F. C. Bennett, John Snelling, G. W. Wright, Monroe.

Alternates: Drs. D. M. Moore, M. W. Hunter, W. E. Jones, Monroe.

#### ST. MARTIN PARISH

President: Dr. J. B. Martin, Jr., Breaux Bridge.

Vice-President: Dr. A. R. Corne, St. Martinville.

Secretary-Treasurer: Dr. S. D. Yongue, Breaux Bridge.

Delegate: Dr. S. D. Yongue, Breaux Bridge.

#### TRI-PARISH

President: Dr. D. F. Davis, Newellton.

Vice-President from E. Carroll: Dr. G. S. Hopkins, Lake Providence.

Vice-President from W. Carroll: Dr. E. D. Butler, Oak Grove.

Vice-President from Madison: Dr. F. A. DeJean, Tallulah.

Vice-President from Tensas: Dr. J. Whitaker, St. Joseph.

Secretary-Treasurer: Dr. L. P. Coleman, St. Joseph.

Delegate: Dr. B. L. Bailey, Epps.

Alternate: Dr. D. F. Davis, Newellton.

#### WASHINGTON PARISH

President: Dr. H. A. Stafford, Franklinton.

Vice-President: Dr. W. R. McGehee, Franklinton.

Secretary-Treasurer: Dr. W. C. Brown, Franklinton.

Delegate: Dr. J. S. Desporte, Bogalusa.

Alternate: Dr. A. W. Martin, Bogalusa.

#### FIFTH DISTRICT

President: Dr. C. E. McConnell, Mangham.

Vice-President: Dr. C. B. Flinn, Monroe.

Secretary-Treasurer: Dr. Ragan Green, Ruston.

Delegate: Dr. J. Q. Graves, Monroe.

Alternate: Dr. C. P. Gray, Jr., Monroe.

### TUBERCULOSIS AND PUBLIC HEALTH ASSOCIATION OF LOUISIANA

The annual meeting of this organization was held in Monroe, La., at the Virginia Hotel, January 30-31. In addition to the regular business session, there were presented a series of addresses and pa-

pers. Dr. Wm. S. Conklin, of Shreveport, opened the meeting with an x-ray clinic. At the banquet Dr. Paul Turner of Louisville, and Dr. Robert Shaw of Dallas, delivered the addresses.

The session on January 31 was devoted to scientific, economic and social problems. Among those appearing on the program were: Dr. Russell H. Frost, Dr. F. P. Rizzo, Dr. Douglas Williams, Dr. Paul Abramson, Dr. Sydney Jacobs, Dr. Julius L. Wilson, Dr. M. W. Hunter, Miss Emma Maurin, Mrs. Carl Cough, Dr. P. R. Gilmer, and Dr. R. Alec Brown.

### THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY PROGRAM

MONDAY, FEBRUARY 26

Morning Session

Emmett L. Irwin, M. D., President: Address of Welcome.

William J. Dieckmann, M. D.: Types and Ambulatory Treatment of Patients with Toxemia of Pregnancy (Lantern Slides).

Henry L. Bockus, M. D.: The Clinical Status of Chronic Gastritis (Lantern Slides).

Eldridge L. Eliason, M. D.: Teamwork in the Treatment of Biliary Disease (Lantern Slides).

Round-table Luncheon

Mayor Robert S. Maestri: Address of Welcome on Behalf of the City of New Orleans.

D. B. Barber, M. D., President of the Louisiana State Medical Society: Address.

G. C. Anderson, M. D., President of The Orleans Parish Medical Society: Address.

Round-table Luncheon Discussions.

Afternoon Session

Henry E. Michelson, M. D.: Dermatology for the General Practitioner (Lantern Slides).

Shields Warren, M. D.: The Pathology of Diabetes (Lantern Slides).

Quitman U. Newell, M. D.: Irradiation Therapy in Gynecology (Lantern Slides).

Francis M. Rackemann, M. D.: The Pathology of Asthma (Lantern Slides).

James S. McLester, M. D.: The Role of the Vitamins in Human Nutrition.

David P. Barr, M. D.: The Relationship of the Pituitary Gland to the Body as a Whole (Lantern Slides).

Evening Session

Elliott C. Cutler, M. D.: Rudolph Matas—Dean of American Surgery.

Rudolph Matas, M. D.: Along the Highways of Medicine in Louisiana.

Reception.

TUESDAY, FEBRUARY 27

Morning Session

Henry E. Michelson, M. D.: The Treatment of Common Skin Diseases (Lantern Slides).

Surgical Pathological Conference: Conducted by Dr. Shields Warren and Dr. Elliott C. Cutler.

Quitman U. Newell, M. D.: Some Remarks on Retrodisplacement of the Uterus (Lantern Slides).

Round-table Luncheons  
for Specialty Groups

Blue Room: Medicine, Endocrinology and Gastroenterology.

Gold Room: Surgery and Pathology.

Room G: Obstetrics and Gynecology.

Room H: Allergy and Dermatology.

Afternoon Session

William J. Dieckmann, M. D.: The Diagnosis and Treatment of Hemorrhage in Late Pregnancy (Lantern Slides).

David P. Barr, M. D.: The Nature and Uses of the Male Sex Hormone (Lantern Slides).

Francis M. Rackemann, M. D.: Intrinsic Asthma (Lantern Slides).

Shields Warren, M. D.: The Effects of Radiation on Tumors and Normal Tissues (Lantern Slides).

Eldridge L. Eliason, M. D.: The Surgical Aspects of Peptic Ulcer (Lantern Slides).

Evening Session

James S. McLester, M. D.: Diet in Heart Disease.

Henry L. Bockus, M. D.: Importance of a Comprehensive Survey in the Management of Peptic Ulcer (Lantern Slides).

WEDNESDAY, FEBRUARY 28

Morning Session

William F. Braasch, M. D.: Hypertension and the Surgical Kidney (Lantern Slides).

Donald S. Childs, M. D.: Radiology and the General Practitioner.

Arthur J. Bedell, M. D.: Medical Ophthalmoscopy, Part I (Lantern Slides).

Henry W. Woltman, M. D.: Neuritis (Lantern Slides).

Vilray P. Blair, M. D.: The Importance of Early Clinical Recognition of Cancer of the Face and Mouth (Lantern Slides).

Round-table Luncheon

Symposium: Sulfanilamide and Its Derivatives.

Medicine: Dr. Smith.

Pediatrics: Dr. Toomey.

Otolaryngology: Dr. Mithoefer.

Urology: Dr. Braasch.

Orthopedics: Dr. Smith-Petersen.

Ophthalmology: Dr. Bedell.

Afternoon Session

William Mithoefer, M. D.: What the General Practitioner Should Know Concerning the Nasal Accessory Sinuses.

M. N. Smith-Petersen, M. D.: Arthroplasty of the Hip (Lantern Slides and Motion Picture).

Tour of the new Charity Hospital.

Evening Session

John A. Toomey, M. D.: Chemotherapy in Acute Infectious and Contagious Diseases (Lantern Slides).

Fred M. Smith, M. D.: Cardiac Therapy (Lantern Slides).

THURSDAY, FEBRUARY 29

Morning Session

John A. Toomey, M. D.: The Differential Diagnosis of Acute Meningeal Irritations (Lantern Slides).

M. N. Smith-Petersen, M. D.: Internal Fixation of the Hip (Lantern Slides and Motion Picture).

William Mithoefer, M. D.: Benign Hypothyroidism—Its Frequency and Treatment.

Arthur J. Bedell, M. D.: Medical Ophthalmoscopy, Part II (Lantern Slides).

Round-table Luncheons  
for Specialty Groups

Gold Room: Medicine, Neuropsychiatry and Pediatrics.

Room E: Orthopedics and Plastic Surgery.

Room G: Otolaryngology and Ophthalmology.

Room H: Radiology and Urology.

Afternoon Session

Vilray P. Blair, M. D.: The Relation of Restorative Surgery to the Control of Advanced Cancer of the Face and Mouth (Lantern Slides).

Fred M. Smith, M. D.: Diagnosis of Coronary Artery Disease (Lantern Slides).

Henry W. Woltman, M. D.: Headache (Lantern Slides and Motion Picture).

William F. Braasch, M. D.: Clinical Data with Renal Lithiasis (Lantern Slides).

Donald S. Childs, M. D.: Care of the Cancer Patient.

Evening Session

Joint Meeting with The Orleans Parish Medical Society.

Henry W. Woltman, M. D.: Localization of Tumors of the Brain; Role of Electro-encephalography (Moving Picture).

John A. Toomey, M. D.: Complications about the Eye in Acute Infectious and Contagious Diseases (Lantern Slides).

NATIONAL GASTROENTEROLOGICAL  
ASSOCIATION

The Louisiana Chapter of the National Gastroenterological Association initiated the program of its last monthly meeting with a moving picture of the anatomy of the abdominal viscera. The film was shown through the courtesy of the Petrolagar Laboratories.

Following this Dr. Shushan presented an instance of chronic ulcerative colitis in a young man, elaborating on the x-ray findings of narrowing of the rectum and descending colon, lack of fever, gradual weight loss, and tenderness over colon; he concluded that the condition should be treated as a symptom complex and deserved the benefit of study by a group of specialists, including an allergist, psychiatrist, and gastroenterologist. All laboratory tests should be exhausted, especially the Frei test, ameba cultures, hematologic studies, and hemograms. Dr. Levin considered that surgery holds the secret of best results. Dr. Weinberger

described the present work being done in Crohns' Clinic where good results are being obtained with auto-immunization with colon filtrates. Dr. Fast-ing recommended that a diet, which is absorbed mostly in the small intestine, be provided following surgery.

Dr. Granger presented a group of x-ray photographs of liver abscesses demonstrating characteristic pathology, all later proved on the table. Defining a liver abscess as a sub-diaphragmatic abscess, may be mostly confused with a perinephritic abscess. In both the hilar glands are enlarged. Perinephritic abscess does not cause obliteration of the cardiophrenic angle in the anteroposterior view, but does cause the posterior costophrenic angle to be obliterated. Pleural effusion is easily differentiated by the fluid level with obliteration of the costophrenic angle anteriorly. Liver abscess causes marked enlargement of the hilar glands; the cardiac angle is obliterated in the anteroposterior view, the costophrenic angle may or may not be affected. Localized bulging of the diaphragm into the lung field is characteristic, and, when an irregularity or roughness of the smooth surface of the diaphragmatic arch is visible, this demonstrates a reaction in the overlying pleura and is a positive sign that rupture of the abscess into the pleural cavity impends, and immediate surgery is demanded. Abscess of the median lobe frequently shows pressure on the lesser curvature of the stomach increasing its crescentic shape, while abscess of the left lobe pushes the stomach closer to the spine and gives a pressure filling defect.

Dr. Gage gave a general outline of accepted causes of peptic ulcer, admitting the possibility of tissue susceptibility, anatomic weakness, vulnerability of the pyloric area being subjected to the presence of the acid gastric chyme. Newer concepts consider gastroduodenal ulceration as merely a symptom of a constitutional disorder with various precipitating causes such as hypersecretion and hyperacidity of the stomach, focal infection, trauma and the possibility of vitamins playing a part.

#### SOUTHEASTERN SURGICAL CONGRESS

The Southeastern Surgical Congress will hold its eleventh annual assembly in Birmingham, March 11-13, 1940, at the Tutwiler Hotel.

A splendid program has been provided for this meeting with speakers, not only from the South, but from other sections of the country and from Canada. Amongst the familiar names are those of Buie, of Rochester; Curtis, of Columbus; Pack and Ramsdell, of New York City; Herbst, of Chicago, and others. The Louisiana men who will appear on the program are Drs. Michael DeBakey and J. D. Rives, both of New Orleans.

The C. Jeff Miller Memorial Lectureship will be given by one of the late Dr. Miller's closest friends, Dr. J. M. Mason of Birmingham.

#### NATIONAL CONFERENCE ON MEDICAL SERVICE

The fourteenth annual meeting of the National Conference on Medical Service will be held at the Palmer House, Chicago, on Sunday, February 11, from 10:00 a. m. to 4:30 p. m., at which will be presented a round table on "Group Medical Care and Group Hospitalization Programs." Other features of the program will be papers by Dr. R. G. Leland on "Allocation of Federal Funds to States"; Drs. Morris Fishbein and E. J. McCormick will discuss "Effective Public Relations." There will be a round table on "Medical Welfare Programs" participated in by a number of distinguished speakers. The noonday dinner meeting will be addressed by Paul G. Hoffman, President of the Studebaker Corporation.

All members of the American Medical Association are cordially invited to attend the conference; there will be no registration fee or dues.

#### AMERICAN ACADEMY OF PEDIATRICS

The annual meeting of Region II of the American Academy of Pediatrics, will be held at the Edgewater Gulf Hotel, at Edgewater Park, Mississippi, on Friday and Saturday, March 15-16, 1940.

Edgewater Park is located between Biloxi and Gulfport, in the very center of what has been properly spoken of as the Riviera of America. It is on the main line of the Louisville and Nashville Railroad and on the famous Old Spanish Trail (U. S. Route 90), which connects Florida with California. Edgewater Park is a semi-tropical, winter pleasure community overlooking the Gulf of Mexico, with more than 300 acres of its own premises devoted to outdoor recreation.

An extraordinarily interesting program has been prepared for the scientific session and in addition to clinical papers, a wide variety of round-table and panel discussions have been planned. Opportunity will likewise be afforded for a delightful recreation on the Gulf Coast during its most attractive season.

In spite of the high quality of service for which the Edgewater Gulf Hotel is famed, the following moderate rates have been quoted for this meeting: \$6.50 and \$7.00 single, \$6.00 and \$6.50 each person in double rooms, daily, American plan.

Region II of the Academy of Pediatrics comprises the southern states from Virginia to Texas and a cordial invitation is extended to any physician to attend this meeting.

It is suggested that reservations be made immediately by writing directly to the hotel.

The fifth assembly of the United States Chapter of the International College of Surgeons will be held in Venice, Florida, February 11-14 inclusive. A distinguished list of speakers will appear on the program.



The American College of Physicians announces a series of post-graduate courses to be held in various centers in the United States. Course 1, General Medicine, will be conducted at the University of Michigan Medical School and University Hospital, March 18-30, 1940; Course 2, Medicine in Industry, will be at the Henry Ford Hospital, March 25-30, 1940; Course 3, Allergy, will be held at The Roosevelt Hospital, Department of Allergy, March 19-30, 1940; Course 4, The Blood and the Blood Cell Forming Organs in Disease, will be conducted at the Ohio State University College of Medicine, March 25-29, 1940; Course 5, Cardiovascular Disease, will be held at the State University of Iowa College of Medicine, March 25-30, 1940.

#### ALPHA OMEGA ALPHA

The annual meeting of Alpha Omega Alpha was held on Monday, January 15. The following members of the Senior class at Tulane were initiated: Mr. W. H. Harris, Jr., Mr. J. M. Fernandez, Miss Nancy Key, Mr. Frank L. Faust, Mr. M. Feldman, Miss Louise Ireland, Miss Adrienne Dorothy McCardell, Mr. Jack P. Michaels, Mr. James Barron.

At the business session the following officers were elected for the coming year: Dr. Lloyd Hanckes, President; Dr. E. Z. Browne, Vice-President; Dr. Alton Ochsner, Counsellor; Dr. Michael DeBakey, Secretary-Treasurer.

#### NEWS ITEM

It has been announced that the Marine Hospital at Carville will undergo extensive remodeling with many new extensions at a cost of some \$3,000,000.

At the December meeting of the Pointe Coupee Parish Medical Society, Dr. Warren Hébert, of New Orleans, gave an interesting and practical lecture on proctology.

There is an opening for a physician in Jackson, Louisiana.

#### HOTEL DIEU STAFF ELECTIONS

Dr. Lucien A. LeDoux was installed as president of the staff of Hotel Dieu on Monday, January 15, 1940. The other new officers of the staff include: Dr. Daniel J. Murphy, vice-president, and Dr. C. E. Gorman, secretary-treasurer. Dr. LeDoux is chairman of the executive committee on which serve Drs. D. J. Murphy, C. E. Gorman, C. G. Cole, George Taquino, Monte Meyer, W. A. Gillaspie, C. J. Brown, P. A. Kibbe, Louis A. Monte and E. A. Socola.

#### MERCY HOSPITAL STAFF ELECTIONS

At the regular meeting for the election of officers at the Mercy Hospital, Dr. R. A. Oriol was selected as president of the staff; Dr. H. Ashton Thomas as vice-president; Dr. P. A. Phillips as secretary; Dr. C. F. Bellone as treasurer, while Dr.

J. J. Irwin and Dr. T. F. Kirn were selected as additional members of the Board of Directors.

#### INFECTIOUS DISEASES IN LOUISIANA

For the fiftieth week of the year, which terminated December 16, there were reported to the office of the state epidemiologist, Dr. J. A. O'Hara, the following diseases in figures greater than ten: Eighty-eight cases of syphilis, 61 of pulmonary tuberculosis, 59 of pneumonia, 40 of cancer, 25 of gonorrhea and scarlet fever, and 14 each of diphtheria and chickenpox. Of the rarer diseases, typhus fever was found, one case in East Baton Rouge Parish and one in Vermilion Parish. For the first time in many weeks a disease other than syphilis led the list of reported diseases: This is pneumonia weather so that this disease can be expected to be first. There were 44 cases listed, followed by 42 cases of pulmonary tuberculosis and syphilis, 28 of whooping cough, 23 of cancer, 22 of gonorrhea, 11 each of diphtheria and scarlet fever, and 10 of chickenpox. It is obvious, likewise, that this is also rabbit season. Six cases of tularemia were reported from three different parishes, Calcasieu, Orleans and St. James. One case of typhus fever was reported in each of the following parishes: Acadia, Calcasieu, Orleans and Webster. The old standby, syphilis, was again back in the leading position in the last week of the year, which closed on December 30. There were 123 cases of this disorder reported to Dr. O'Hara. The next diseases in order of frequency were 35 cases of pneumonia, 28 of cancer, 22 of hookworm, 15 each of diphtheria and scarlet fever, 14 each of pulmonary tuberculosis and gonorrhea, and 11 of whooping cough. A case of undulant fever was discovered in St. Mary and one in Orleans Parish. There were only two cases of typhus fever this week, one from Iberia and one from Lafayette. The first week in the year, which ended January 6, found recorded 94 cases of syphilis, 33 of pneumonia, 24 of cancer, 18 of scarlet fever, 17 of chickenpox, 15 of influenza, 14 of pulmonary tuberculosis, and 12 of diphtheria. A case of poliomyelitis was discovered in Lincoln Parish, one of typhus fever in Avoyelles, Orleans and St. Martin parishes. Two cases of tularemia were reported from Orleans Parish. For the second week of the year, completed January 12, the records show that there were 60 new cases of syphilis in Louisiana, 55 of pneumonia, 39 of pulmonary tuberculosis, 32 of influenza, 21 of cancer, 19 of scarlet fever, 15 of chickenpox, and 13 of diphtheria. Typhus fever was reported from Acadia and Calcasieu parishes, one case each. Pointe Coupee discovered an instance of tularemia. It is interesting to note that pneumonia and pulmonary tuberculosis both reported approximately the same number of cases as is found in the five-year average for the second week of the year, cancer having increased considerably, whereas influenza was considerably reduced.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending December 16, there was an increase of 29 deaths in the City of New Orleans over the previous week, 180 of the citizens having expired in this period. The deaths were divided 125 white and 55 negro, with 11 deaths in small infants. There was a considerable decrease in the number of people dying in the week of December 23, largely as a result of 35 less deaths in the white population although the negro deaths remained stationary as did the infant deaths. The final week of the year showed a total of 174 deaths, again as a result of more deaths among the white people, 116 having succumbed to some fatal disease, whereas the negro and infant deaths remained the same as the previous week. The new year started very badly in the City of New Orleans: There was a sharp increase in the total number of deaths in the city, jumping up to 225, the largest number for many weeks and 50 more than the three-year average for the corresponding week. These deaths were divided 152 white and 73 negro. A considerable portion was in infants under one year of age, 14 white and 18 negro babies having died this week; a total of 32 as contrasted with the three-year average of 13.

## AN EDITORIAL

The following editorial, reprinted from the New Orleans States of January 22, 1940, is so well expressed and so definitely indicative of the sentiments of not only the medical profession but the laity as well, that it was thought it might appropriately be reproduced in the Journal.

"Literally there are no surgical honors left, that, awarded to Dr. Matas, would be new to him. He has won them all, national and international, in the 60 years of his 79 years of life that he has devoted to medicine, and, chiefly, to surgery. There is no important artery in the human body on which he has not operated. The Matas operation is classic in world surgery. The Matas medal had to be created, in his own lifetime, to honor one of whom all other professional honors were past experiences, by the unique privilege of being able in person to present the medal bearing his name to another. Dr. Matas, for one example, is the oldest living ex-president of the American College of Surgeons which made him its guest of honor at this recent dinner.

"And at that dinner, one reason for the fame of Dr. Matas, based on his achievements, stood revealed. In his own talk, he told his hosts that as long as enthusiasm for our work remains, 'we need not worry about anything else.' Whatever success had attended his work, he said, was because always he had been able to keep that enthusiasm for surgery.

"Enthusiastic about one's work at 79! Enthusiastic after 60 years of study and devotion to an

ideal that takes no thought of hours or fatigue or strain or hardship! Let the easily bored ones give that a moment's thought. Let the pessimists and defeatists and the what's-the-use folk meditate about that for a little while.

"New Orleans can be proud indeed that such a man calls New Orleans "home" and means it. New Orleans can echo the words of Dr. James Monroe Mason of Birmingham, Ala., regent of the American College of Surgeons, at that dinner to Dr. Matas: 'Those of us who survive you may never see your like again!'"

## CORRESPONDENCE

American Medical Association  
Bureau of Legal Medicine and Legislation

535 North Dearborn Street, Chicago,  
January 9, 1940.

Dr. P. T. Talbot, Secretary,  
Louisiana State Medical Society,  
1430 Tulane Avenue,  
New Orleans, Louisiana.

Dear Dr. Talbot:

President Roosevelt in the budget for the fiscal year of 1941 that he submitted to Congress, January 4, included an item of \$600,000 for the acquisition of a site for a new building in which to house the vast collection of invaluable medical literature comprising the Army Medical Library and Museum. A copy of the pertinent budget item is enclosed.

The budget is before the Committee on Appropriations of the House of Representatives of which Representative Joachim O. Fernandez of your State is a member. Before the sum recommended by the President for the site for the new building can become available, it is necessary that the item be included in an appropriate appropriation bill. I believe it will be helpful toward that end if the Louisiana State Medical Society urge Representative Fernandez to exert his influence to have the House Committee on Appropriations, in which appropriation bills originate, take the necessary steps to make available the recommended sum as expeditiously as practicable.

The House of Delegates has repeatedly recognized the urgent need for this new building and has passed resolutions petitioning Congress and appropriate federal officials to act with respect to the matter.

Yours truly,

J. W. Holloway, Jr.,  
Acting Director.

WILKES H. KNOLLE, M. D.

(1870-1940)

One of the deans of the medical profession in New Orleans passed away January 7 at his home in New Orleans. Dr. Wilkes H. Knolle was known

to all of the older and many of the younger members of the Society. He had been President of the Orleans Parish Society for two terms, 1915 and 1916, and later President of the Louisiana State Medical Society for the year 1918-19. Born in 1870, graduating from Tulane University in 1891, Dr. Knolle served his internship and started the practice of medicine in 1892, continuing uninterrupted until the time of his last sickness. Quiet, kind, considerate and a good friend, he will be mourned by innumerable patients and colleagues.

**SAMBOLA J. COUVILLON, M. D.**  
(1879-1940)

Dr. S. J. Couvillon, coroner of Avoyelles Parish and former mayor of Moreauville, died Sunday, January 21, at the age of 60. Dr. Couvillon was one of the most prominent physicians in the central part of the state. He was active in the parish society and in the State Medical Society; he served as first vice-president of this latter organization in 1931 and last year at the annual meeting presented the tribute to the deceased members.

The death of this outstanding gentleman and physician will be mourned by a large circle of friends and patients.

**LEONHARD E. DEVRON, M. D.**  
(1901-1939)

Dr. Leonhard E. Devron died suddenly at his residence in New Orleans on December 25, 1939. Dr. Devron graduated from Tulane University in 1925. He was a member of the Stars and Bars Chapter of Alpha Omega Alpha, honorary society. One of the younger group of physicians, Dr. Devron was well known for his agreeable manner and unflinching courtesy. He will be missed by his many friends.

**WOMAN'S AUXILIARY**

**Louisiana State Medical Society**

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

To those members of the Woman's Auxiliary who confine their reading to this section of the Journal and to those who read the editorials, I would suggest that the former read and the latter re-read a striking editorial on state medicine, a timely and pertinent subject of interest to the wives of the medical profession as well as to their husbands. Dr. Musser has given us permission to reprint herewith this editorial, which appeared in the December issue of 1939.

**STATE MEDICINE**

A recent address by Dr. Van Etten, President-elect of the American Medical Association, delivered before one of the medical societies of the State of New York, is well worthy of quotation, comment and paraphrasing. This chief representative of organized medicine asked the question: Does the American medical man want the medicine of England, of Hitler or Stalin, or does he want American medicine? He wants to know if the patient is desirous of having personal medical care and if he wants to choose his own doctor. He asks the patient if he wants a doctor to be an employer of the state, working limited hours or days, or does the patient want a doctor to work for him when he needs him.

The statement is made by inspired propagandists that forty million people in this country suffer from a lack of medical care. The pronouncer of such a statement, which obviously is untrue and false, prescribes socialized medicine as carried out in Europe. As a matter of fact any person in this country, almost without exception, can have emergency medical care free of cost any time of the day or night. Every large city, most small towns and rural communities have hospital facilities that are available to people whose incomes are small. A generous medical profession cares for these people free of charge, or charges according to their means. In refuting the distorted statement that forty million people do not get medical care, how can one explain the fact that the death rates have been and still are steadily falling?

Of course there are a few communities in which medical care may be inadequate but the people in these same communities are also poorly fed, clothed and housed.

The health of the individual and the health of the community would be enhanced materially by slum clearance in the larger centers. In the rural areas teaching the people how properly to live would do much for their health.

The propagandists are making derogatory statements concerning the medical profession which may weaken the medical profession in its contact with patients, a most unfortunate situation because trust and confidence of the patient in his doctor are the first essentials for proper care of the sick man. The aspersions cast against the profession are unfairly presented and are untrue for the most part. As a matter of fact organized medicine

stands for the prevention of disease, the protection of children from communicable diseases, the care of deformed and crippled children, the prevention of blindness in the child and for his nutritional improvement. The medical profession stands for the attempted reduction of communicable venereal disease, it stands for proper sanitation, for good food and drug laws and good housing. Absolutely the medical man's function lies in his preservation as the family physician, the guider and helper of innumerable families. He sees the difficulties state education meets, particularly when it has grown too expensive for a community, thousands of teachers unpaid and out of work, only a few new teachers appointed, expensive political manipulations and other evils. The doctor in his practice occasionally considers state medicine in terms of salaried relief from financial worries, but the doctor makes a living and in making this living he forgets about finances in the interest of his profession. He realizes and appreciates that it is the most fascinating profession in the world and he loves it. All he asks is a fair return for the efforts that he makes in combating disease and helping patients.

---

#### PARISH AUXILIARY NEWS

##### ORLEANS

In January the Orleans Parish Auxiliary finished its fiscal year under the able leadership of Mrs. C. Grenes Cole. We submit herewith a brief review of some accomplishments of which Mrs. Cole and her co-workers may be justly proud.

Each monthly meeting begins with a short business session when committee reports are read and recommendations from the executive board given. A program follows, something of general interest; the Auxiliary pays for these entertainments. The meeting then closes with a tea.

This past year the Auxiliary has been hostess to the American College of Physicians and to our own New Orleans Graduate Assembly, each time entertaining medical men and their wives from far and near. At the same time other committees have been busy working: The Red Cross Unit, one of the largest in the city, meets every week to make dressings and take class instruction, with Mrs. Frank Chalaron, chairman. The committee which picks up old or donated clothes to be given to Tulane or L. S. U. medical students, Mrs. Leon J. Menville, chairman, has fortunately been able to fill every call. The sample committee, Mrs. Joseph Brierre, chairman, reports all samples collected from the offices of physicians and taken to free clinics and orphanages were very much needed. These samples are never used except under the direction of the physician in charge of the institution.

The committee on periodic health examination with Mrs. H. B. Gessner, chairman, has helped to

remind the members of this important duty to themselves, and perhaps has encouraged others. The committee for selling Christmas seals for tuberculosis and the one for Community Chest Drive have done their parts.

One of the most worthwhile endeavors that any organized group may undertake is to help their own. The Orleans Parish Auxiliary has made a step in that direction by sending aid to an indigent widow through a special commemoration fund. Mrs. J. M. Davidson, chairman, has given this her personal attention.

The following officers will serve for 1940:

President.....	Mrs. A. F. Hebert
President-elect.....	Mrs. J. W. Warren
First Vice-President.....	Mrs. G. J. Taquino
Second Vice-President.....	Mrs. J. E. Brierre
Third Vice-President.....	Mrs. W. H. Harris
Fourth Vice-President.....	Mrs. F. J. Chalaron
Recording Secretary.....	Mrs. C. R. Hume
Corresponding Secretary.....	Mrs. R. J. Christman
Treasurer.....	Mrs. D. J. Murphy
Historian.....	Mrs. Arthur Weil
Parliamentarian.....	Mrs. N. H. Polmer
Publicity.....	Mrs. D. C. Browne

Mrs. Edwin R. Guidry,  
Publicity Chairman.

---

##### TANGIPAHOA

The Tangipahoa Parish Auxiliary was joined by members of the medical society at a banquet given in December to celebrate its first year of organization. The affair followed a business meeting where reports of the year's work were read. With new members being added and prospects of others, this group should be proud of its accomplishments.

Mrs. M. C. Wiginton, of Hammond, has been the president during this important year, leading the group into many worthwhile fields of activity.

At the January meeting, the medical society will send a doctor to speak on state medicine; guests have been invited from the other women's clubs. This meeting is being held in accordance with an appeal sent by Mrs. S. M. Blackshear, State President, to all Louisiana auxiliaries.

---

##### AMERICAN COLLEGE OF SURGEONS

The Southern Sectional Meeting of the American College of Surgeons brought to New Orleans on January 17, 18 and 19, about five hundred surgeons and their wives, from the states of Louisiana, Mississippi, Alabama, Georgia, Florida, Tennessee, Kentucky, Missouri, Arkansas, Texas and Oklahoma.

Dr. Rudolph Matas, renowned surgeon and oldest living Past President of the College, was honored

at a dinner given by this distinguished group, who lauded him "one of the greatest figures of medical history." New Orleans' surgeons prominent in the College are Dr. Alton Ochsner, a member of the Board of Regents, and Dr. Hilliard E. Miller, one of the Governors, besides many leading surgeons who are Fellows of the College.

Although this group does not have an Auxiliary, members of the Orleans Parish Auxiliary did their part in making the visitors welcome.

Respectfully submitted,

Mrs. Edgar Burns,  
Press and Publicity Chairman.

---

## BOOK REVIEWS

*Roentgen Technique:* By Clyde McNeill, M. D. Springfield and Baltimore, Charles C. Thomas, 1939. Pp. 315. Price \$5.00.

While many works on roentgen technic and positions are available, this volume is unique in the arrangements of the subject matter. Since roentgen ray apparatus and exposure technic will become obsolete in a relatively short time, very little space is devoted to these subjects by the author.

When the book is opened, the two pages facing the reader contain a complete description of one position. The illustrations appear on the left and the descriptive matter on the right.

This work is divided into five parts. Part I deals with positions of the head and is probably the most outstanding portion of the book as it includes practically all of the many positions possible in the roentgen study of the skull, sinuses and mastoids. Line drawings are employed in the illustrations of these positions.

Positions of the extremities are considered in Part II. Additional views besides the usual anteroposterior and lateral are included.

Part III, which describes the positions employed in the roentgen study of the trunk, contains a description of the kymogram, the tomogram, the visualization of the chambers of the heart and utero-salpinogram. The most commonly employed methods of pelvimetry and cephalometry are also discussed in this part.

Part IV contains tables of various technics, including those for roentgenography with the rotating anode tube. The section of this part dealing with the description of apparatus and physics is concise.

The illustrations are excellent, and the text is clear. References have been included, and, as a whole, this volume should prove of value to roentgenologists and x-ray technicians.

J. N. ANÉ, M. D.

*Epidemic Encephalitis:* Third Report of the Matheson Commission. New York, Columbia Univ. Pr., 1939. Pp. 493. Price \$3.00.

In this volume is reported the results of the investigations and compilations of the Matheson Commission, which was founded through the munificence of Doctor William J. Matheson, in 1927,

for the study of epidemic encephalitis. It contains a wealth of thoroughly sound and up-to-date material obtained from a long continued follow-up of a large number of cases and an exceedingly careful survey of the literature. Some 300 pages were required merely to list the bibliography.

Inasmuch as this is the Third Report and the work of the Commission continues, the reader is warned against regarding it as a finished product and against assuming that finality has been reached in its deliberations and conclusions.

The Commission believes that the attack on the problem of epidemic encephalitis should be intensified in the laboratory approach, particularly as regards the investigation of the virus diseases of the nervous system and that a more intensive study of the experimental phases should be made and all important leads pursued.

As to the treatment of the chronic stage of epidemic encephalitis, it is interesting to observe that all forms of psychotherapy, including hypnosis, are employed and that re-education is thought to be one of the most important factors in the rehabilitation of those suffering with residual defects.

It is believed that more and more time and more and more research alone can solve this problem and that, so far as is known, the Matheson Commission is the only unit continuously and intensively studying this disease.

This contribution of the Matheson Commission is significant and a valuable one to medical science. The Columbia University Press is entitled to praise for the excellence of the artistic make-up of the book.

C. P. MAY, M. D.

*Diseases of the Skin:* By Richard L. Sutton, M. D., Sc. D., L. L. D., F. R. S. (Edin.), and Richard L. Sutton, Jr., A. M., M. D., L. R. C. P. (Edin.). St. Louis, C. V. Mosby Company, 1939. Pp. 1,549. Price \$15.00.

This revised, enlarged and reset tenth edition has grown to be quite a large volume of over 1500 pages. There has been a radical departure in the arrangement of material with a trend toward being a bit dogmatic in regard to opinions as to treatment. There is also a strong tendency

to take odds with other authors on closely contested differences in classifications, which in the opinion of the reviewer adds to the value of the text. The chapters on diagnosis, treatment, and care of malignancies are excellent. The chapters on the treatment of acne should appeal to all because of the authors' straightforward manner of presentation. The comprehensive description of serologic diagnosis of syphilis contains the latest opinions, methods and safe-guards. The chapter, "Diseases Due to the Higher Fungi," including their culture, identification and treatment, is very complete.

Many new photographs, colored plates of photographs and microphotographs, along with a new departure in the bibliography (that of adding comments by the authors after each reference) have greatly enhanced the value of the text for teaching students or as a reference book.

Although a massive volume, what more could one desire than a complete book shelf on skin diseases in one cover. Its authors and publishers should be congratulated.

M. T. VAN STUDDIFORD, M. D.

*The Neurogenic Bladder:* Frederick C. McLellan, M. D. Baltimore, Charles C. Thomas, 1939. Pp. 197. Price \$4.00.

This splendid monograph presents the problem of the neurogenic bladder in correlated and lucid form. The volume as such is certain to find a well-merited place in the libraries of both urologists and neurologists. The author begins his book with a detailed description of the normal bladder, the anatomy of its innervation, and the current concepts of its neurophysiology. This is followed by a description of the control of bladder function and the act of micturition. The remainder of the book is concerned with the classification of the neurogenic bladder, the application of cystometry, and a brief resumé of treatment. Chapters also are devoted to myogenic vesical dysfunction and enuresis. The appendix contains the summary of the findings in 100 cases of neurogenic bladder together with 57 figures and chapters.

This work will be of primary interest to those who delight in a scientific approach to clinical problems.

The only adverse criticism, in this reviewer's opinion, is the relegation of the charts to the latter pages of the book. Since study of these charts is essential to complete appreciation of the text, one must constantly break the flow of thought in order to search for a given page. It would seem that the value of the diagrams would be enhanced by interspersing them in the text itself.

I. J. GLASSBERG, M. D.

*Sclerosing Therapy:* Edited by Frank C. Yeomans, M. D., F. A. C. S., M. R. S., (Lond. Hon.).

Baltimore, The Williams & Wilkins Co., 1939. Pp. 337. Price \$6.00.

This book considers the treatment of hernia, hydrocele, varicose veins, and hemorrhoids by sclerosing methods. In each instance the collaborators, Arthur F. Bratrud on hernia, George Hock on hydrocele, Harold Skelley on varicose veins, and Frank Yeomans on hemorrhoids, have expended a tremendous amount of work and study in the preparation of their respective sections. There is a consideration of the historical aspect, the anatomy, the etiology, and clinical aspects, besides a more extensive space devoted to the treatment of each condition. The types of sclerosing solution and their advantages are discussed in detail and the technic of examination and injection are amply explicit without being unnecessarily repetitive.

This book decidedly favors sclerosing therapy and this might be considered one of its only faults. It seems to present an unbalanced enthusiasm for injection technic. It is true, that in the hands of certain men, injection therapy has proved to be satisfactory and the comparative results with those of other methods entirely favorable. On the other hand, many able men have denounced this type of therapy for hernia and varicose veins except in a minority of cases which are selected for such therapy. And many equally able men have stated that in their hands injection therapy for hernia fails to give results which might be considered comparatively satisfactory with those obtained by surgery. Other observers, either tacitly by failing to adopt the method after sufficient try, or actively by denouncing it in the literature, have pronounced their disapproval of such therapy. In this day when the physiology of varicose veins and the tremendous back pressure known to be present in the well developed case is appreciated, the indication for ligation of the internal saphenous vein listed by the author, namely "when it is impossible to obliterate the saphenous by injection therapy because of obesity," is open to vigorous question if not outright criticism. Likewise questionable is the conclusion that large and extensive varicosities with a positive Trendelenburg test can be satisfactorily cared for with injections alone if it is possible to sclerose the great saphenous in its entire length. The space allotted to the consideration of ligation combined with injection is relatively small and it might be considered inadequate since today the most accepted form of therapy for those cases which have a positive Trendelenburg reaction is ligation and injection. No consideration is given to other surgical methods for the treatment of varicose veins. Though the discussion of injection treatment of hernia is very detailed, there is no space allotted whatsoever to the operative treatment of hernia. No consideration is given surgical treatment of hydrocele or varicosities.

This volume is well worth the study of anyone who is using injection therapy and an adjunct to surgery in the treatment of these conditions. However, the reviewer believes that a truer evaluation of the status of injection therapy for these conditions can better be appreciated by the study of surgical text in conjunction with this volume.

HOWARD MAHORN, M. D.

*Dysenteric Disorders:* By Philip Manson-Bahr, C. M. G., D. S. O., M. D., F. R. C. P. Baltimore, The Williams & Wilkins Company, 1939. Pp. 613; illus. Price \$8.00.

This work of nearly 600 pages, the clinical part of which is based on about 1,400 cases, divides the dysenteries into bacillary, protozoal, and helminthic, and has sections on the infective diarrheas, the steatorrheas, affections of the colon resembling dysentery, affections resembling dysentery, and other causes of diarrhea and dysenteriform symptoms. There is an appendix, one chapter of which deals with intestinal protozoa and another with laboratory methods. There is an extensive bibliography. The book is rich in illustrations, largely original, including a number of colored plates which should prove very useful.

The text considers the various clinical entities in a systematic manner and gives especially full consideration to history and world distribution, where these are of interest. As befits a book intended primarily for clinicians, treatment is discussed fully.

In the treatment of bacillary dysentery, the author regards serum as the mainstay, and, in the chronic form, when medical measures appear likely to fail, surgery is recommended (appendicostomy, valvular cecostomy, ileostomy). The difficulties and uncertainties of prophylactic vaccination are discussed, though the reader is left in doubt whether or not it should be employed, but vaccines are advocated in the treatment of the chronic bacillary carrier condition.

Under the head of treatment of amebic dysentery there is found the following statement (p. 188) with which the reviewer agrees: "It may justly be claimed that, at the present day, medical science has more complete control of *E. histolytica* and its effects than of any other human parasitic infection." Surgical treatment of the liver manifestations of amebiasis is held to be seldom necessary if proper medicinal treatment has been used.

The nervous phenomena seen in mucous colitis "may be the cause or the result of the disease." The "psychotherapeutic approach" in treatment is advocated—confidence in the ability of the physician to aid, and a minimizing of the danger of the disease.

The author stresses the uncertain etiology of idiopathic ulcerative colitis and regards the treatment of this disease as presenting problems more difficult than elsewhere in the group of dysen-

teries; he has had little success with serum-vaccine therapy.

The preventive medicine aspects of the various clinical entities are discussed as fully as existing knowledge warrants.

The author regards flies as important agents in the transmission of bacillary dysentery and is impressed by the strength of the evidence of water transmission of amebic dysentery. The outbreak of epidemic amebic dysentery in Chicago (1933) is accepted, as it should be, as being only an unusual occurrence.

One might easily criticize minor details, such as the author's opinion that *stercoralis* is harmless, though directions for treatment are given in the next paragraph; the pathologist may not understand what is meant by "toxic staining of the viscera," and he may have some difficulty in grasping the description of the stage of necrosis in bacillary dysentery (p. 49) but, on the whole, the author has contributed a volume which should be of value to practitioners everywhere, and especially to those in the tropics. This is what we have a right to expect of one with the rich experiences of Dr. Manson-Bahr.

G. W. McCoy, M. D.

*The Fight on Cancer:* By Clarence C. Little, Sc. D. New York, The American Society for the Control of Cancer, Inc., 1939. Pp. 31. Price \$ .10.

This is a little pamphlet which has been prepared by the Managing Director of the Society for the Control of Cancer. It is for the use of the general public and points out to the laity the important facts concerning signs and symptoms of cancer. Also it indicates what is being accomplished by the Women's Field Army and shows what activities should be undertaken in order to prevent cancer, most important of which is the periodic health examination.

The booklet might well be a New Year's gift of the doctor to his patients of mid-life.

J. H. MUSSER, M. D.

*Tumors of the Skin, Benign and Malignant:* By Joseph Jordan Eller, M. D. Philadelphia, Lea & Febiger, 1939. Pp. 607. Price \$10.00.

This text outlines the present day knowledge of benign and malignant tumors of the skin in a concise, orderly, and comprehensive manner, giving a description of the tumor with its histology and etiology, as well as the differential diagnosis, prognosis, and treatment.

Benign tumors are systematically subdivided into groups: Tumors of connective tissue origin, those originating from muscle or nerve tissue, nevi and other developmental disturbances of the skin, tumors of infectious origin, and precancerous conditions of the skin. This portion of the text affords a quick, ready reference in regard to the common tumors of the skin and includes

very complete bibliographies. Histopathologic illustrations and photographs of the gross lesions show the relationship of treatment to pathology.

Ample space is allotted to the discussion of the general treatment of cutaneous carcinoma by (1) surgery by use of the scalpel, electric knife or electrocoagulation; (2) irradiation with roentgen rays, topical radium or interstitial irradiation (radium needles or radon seeds).

The appendix contains practical data on radiation physics and biology, and furnishes various dosage and absorption tables for radium, radon, and roentgen therapy.

A special chapter on cutaneous surgery and plastic repair of skin tumors adds just the proper general information to make the volume of value to both the specialist and the practitioner.

The answers to the questions of an increasingly "tumor conscious" laity are readily accessible in this book, and its use for this phase of practice only would well justify its publication. The author has more than accomplished his object in writing such a volume and it will long remain a valuable text.

M. T. VAN STUDDIFORD, M. D.

*Epidemiology in Country Practice:* By William Norman Pickles, M. D. (Lond.). Baltimore, The Williams & Wilkins Company, 1939. Pp. 110. Price \$2.50.

The preface of this little volume is written by Major Greenwood, the distinguished statistician, professor of epidemiology and vital statistics in the University of London. Three sentences from this preface may be quoted: "I know that in some kinds of research professionalism is inevitable. Even in Epidemiology we must have 'experts' of different kinds. But these experts are no wiser than amateurs, and the mere fact that they are experts deprives them of many fruitful opportunities."

The author points out that the practitioner in rural areas has better opportunities for studying his cases and epidemics from the point of view of epidemiology than has his urban colleague, and makes a plea for taking advantage of such opportunities.

Dr. Pickles practices in Wensleydale, England, and notes that the epidemic of influenza of 1918 gave a mortality in that community exceeding anything previously recorded. The only epidemic diseases discussed are those that have been spread by personal contact and are from the writer's experience as a health officer. The tendency on the part of the public to demand the closing of schools as a means of controlling an epidemic is noted, and the opinion is expressed that if churches, movies, and the like were also closed that, too, might serve a useful purpose, but, as the author indicates, this does not appeal to the public.

The author quotes Pasteur's often repeated remark that "in the fields of observation chance only favours the mind which is prepared." Very interesting are the author's conclusions on incubation periods based on his own experience. Influenza is "never less than two and never more than three days"; measles, twelve days; Sonne dysentery, two days. He has noted the varying clinical conditions that may develop from contact with a single case of scarlet fever, viz: sore throat, erysipelas, axillary abscess and cellulitis. He believes that in rural districts scarlet fever is better treated at home than in a hospital. So far as etiology is concerned, rather convincing evidence is presented for the practical identity of chickenpox and herpes zoster,—a matter generally considered rather controversial.

The author records an epidemic of Sonne dysentery which he regards as having been spread by soiled towels. There is a rather full discussion of epidemic catarrhal jaundice, also of epidemic myalgia (devil's grippe, Bornholm disease) which gave the author much difficulty in making a correct diagnosis.

The little volume will be of chief interest to students of factors influencing the spread of communicable diseases, although there are many paragraphs of interest to clinicians as well.

G. W. McCox, M. D.

#### PUBLICATIONS RECEIVED

The Blakiston Company, Philadelphia; *Medico-legal & Industrial Toxicology, Criminal Investigation, Occupational Diseases*, by Henry J. Eilmann, Ph.D.

Harvard University Press, Cambridge, Mass.: *Virus and Rickettsial Diseases with Especial Consideration of Their Public Health Significance*, A Symposium held at the Harvard School of Public Health, June, 1939.

Paul B. Hoeber, Inc., New York City: *Handbook of Skin Diseases* by Leon Hugh Warren, B. A., M. D., M. Sc. (Med.).

Reynal & Hitchcock, Inc., New York City: *The Patient's Dilemma* by Hugh Cabot, M. D.

Frederick A. Stokes Company, New York City: *You and Heredity* by Amram Scheinfeld assisted in the genetic sections by Morton D. Schweitzer, Ph. D.

The University of Wisconsin Press, Madison: *A Symposium on the Blood and Blood-forming Organs*.

The Williams & Wilkins Company, Baltimore: *Demonstrations of Physical Signs in Clinical Surgery* by Hamilton Bailey, F. R. C. S. (Eng.). *Surgical Diagnosis* by Stephen Power, M. D. (Lond.), F. R. S. C. (Eng.). *Massage and Remedial Exercises in Medical and Surgical Conditions* by Noel M. Tidy.



# New Orleans Medical and Surgical Journal

Vol. 92

MARCH, 1940

No. 9

## APPENDICITIS\*

### A SYMPOSIUM

#### THE AIMS OF THE APPENDICITIS COMMITTEE OF THE SURGICAL SECTION OF THE SOUTHERN MEDICAL ASSOCIATION

ISIDORE COHN, M. D.

NEW ORLEANS

At the last annual meeting of the Southern Medical Association, a committee of three (composed of Drs. J. M. T. Finney, Jr., chairman, Jerry L. Crooks, Jackson, Tenn., and Isidore Cohn, of New Orleans), was appointed to investigate the mortality resulting from appendicitis in the Southern area.

On March 29, 1939, the members of this committee met in Nashville, Tennessee. "The aim and purpose of the Committee was defined as being to undertake an educational campaign toward the lowering of the death rate from appendicitis throughout the South." (Minutes of the committee's meeting.)

In order to facilitate the committee's work, a chairman for each state was appointed. The chairman of each subcommittee was empowered to appoint his own committee. An outline for the subcommittee's activity was sent out by the chairman. This outline has already been published<sup>1</sup> and therefore, it need not be repeated at this time.

It was definitely the feeling of the cen-

tral committee, that each subcommittee should endeavor to obtain the complete cooperation of federal, state, county, and city authorities, in their respective states. It was further the feeling that every possible use should be made of radio programs, and public lectures by members of constituent medical bodies, so that the interest of all organized components of state medical groups should have a part in the program, thus giving a wider distribution of the available information.

Our interest and that of the public centers in the fact that the mortality rate which results from a primary disease within the appendix is too high. Reference to all statistical studies indicates that the mortality which remains so high, is the mortality of delay.

In an editorial, in the American Journal of Surgery, Guthrie<sup>2</sup> said: "Without doubt, the delay of the patient in seeking medical relief, and medical treatment of the attack, the use of purgatives and of morphine, and the mistake of diagnosis, are the main causes for this unnecessarily high mortality."

Garlock,<sup>3</sup> of New York, has written: "The mortality rate of acute appendicitis is directly dependent upon the length of time between the onset of symptoms, diagnosis, and operation."

Reid, et al,<sup>4</sup> have stated: "Over ninety-eight per cent of the deaths from appendicitis were due to the complications accompanying perforation.

"The mortality rate in acute unruptured appendicitis is .86 per cent; the mortality

\*Read before The Orleans Parish Medical Society, November 13, 1939.

rate due to rupture with peritonitis is 33.9 per cent.

"The percentage of perforations has decreased very little during the past three years.

"The average time elapsed between the onset of symptoms, and admission to the hospital was 3.8 days, much too long for proper surgical treatment, and the mortality rate will remain high as long as patients are not operated on earlier."

A study of Reid's tables indicates that the elapsed time between the onset of the acute attack and admission to the hospital has diminished very little since 1924, when it was 3.7 days; in 1933 it was 3.5 days.

John O. Bower,<sup>5</sup> of Philadelphia, stated: "There is practically no mortality from acute appendicitis; patients die of peritonitis, not appendicitis." From Bower's tables, we see that of 12,250 patients with acute appendicitis operated upon, one in 83 died, while of 2,573 patients with acute appendicitis operated upon with spreading peritonitis, 694, or one in four, died. Of the total number of cases investigated by Bowers, 18,687, 849 died, or one in 22.

According to Hoffman,<sup>6</sup> the average mortality rate of appendicitis per 100,000, in Philadelphia, was 13.4 from 1928 to 1933. During the same period in the United States, it was 17.1. The average mortality of spreading peritonitis in Philadelphia was 26.97 per cent. According to this ratio it must have been at least 33 per cent throughout the United States.

The above quotations certainly bear out the statement, that the mortality is the mortality of delay. It should be accepted as axiomatic that the one way to reduce mortality is to make an early accurate diagnosis, and to operate at once. To solve the problem involves the question of early diagnosis, how to do what is to be done, and when to do it. Surgery is indicated in the presence of acute appendicitis, and delay is indicated in peritonitis.

The time element is a variable factor which cannot be dogmatically given. Proper information to the public on the importance of early medical attention to abdominal pain, the avoidance of purgatives, and in-

sistence on early operation will save many lives. Dogmatic teaching to medical students and the public that a definite sequence of events must occur in order that a diagnosis of acute appendicitis be made, is a pernicious teaching. The classic picture so often insisted upon is rarely present. Delay on the part of the attending physician until a classic picture presents itself, results in perforation and peritonitis, the two factors which are responsible for high mortality.

The mortality from diphtheria at one time, that is, prior to the introduction of von Behring's serum, was extremely high. Following the introduction of the serum for treatment, the mortality gradually diminished. The rate diminished in proportion to the time at which a diagnosis was made and treatment instituted, and in proportion to the effectiveness as evidenced by the proper use of serum. With the introduction of prophylactic measures, diphtheria has ceased to be one of the great causes of mortality among children.

#### SUMMARY

Early diagnosis and early adequate treatment of appendicitis will diminish the fearful mortality from appendicitis, which at present is a definite acute surgical catastrophe.

#### REFERENCES

1. The Orleans Parish Medical Society Bulletin, 5:11, 1939.
2. Guthrie, Donald: Appendicitis mortality (Editorial), *Am. J. Surg.*, 29:171, 1935.
3. Garlock, John H.: Acute appendicitis, controllable mortality factors, *Am. J. Surg.*, 23:248, 1934.
4. Reid, M. R., Poer, D. H., and Murrell, P.: A statistical study of 2,921 cases of appendicitis, *J. A. M. A.*, 106:665, 1936.
5. Bower, J. O.: Spreading peritonitis complicating acute perforative appendicitis, *J. A. M. A.*, 112:11, 1939.
6. Hoffman, F. L.: Quoted from Bower.

## THE DIAGNOSIS OF ACUTE APPENDICITIS

H. REICHARD KAHLE, M. D.†

NEW ORLEANS

Any physician who comes in frequent contact with acute appendicitis, as does the surgical resident in a large hospital,

†From the Department of Surgery of the School of Medicine of Louisiana State University, New Orleans.

promptly and not unreasonably develops the suspicion that any sort of pain anywhere in the body may be the first warning of acute appendicitis, which may be present even when this supposedly infallible symptom is absent. I am not being facetious when I make that blanket statement. As I look back upon my own surgical residency at the New Orleans Charity Hospital, I can recall case after case which proves my point. I can recall, for instance, the appendiceal abscess found at operation in an ambulant white man who had a vague and altogether innocent history and who had no positive physical findings of any sort. I can also recall the fatal spreading peritonitis of appendiceal origin in a child in whom the chief finding was distention and who was sitting up in bed playing with a doll when I first saw her.

In his zeal to educate the layman in various medical matters, the physician must not forget his own education. The necessity for his education in acute appendicitis has not yet been eliminated, as the accusing figures clearly demonstrate. Perforation and peritonitis still take their dreadful toll for two chief reasons, that delay and purgation are still practiced instead of early diagnosis and prompt operation.

#### SYMPTOMS OF ACUTE APPENDICITIS

In discussing the early diagnosis of acute appendicitis, it is impossible to avoid the platitude that no diagnostic method has yet supplanted the simple plan of careful history and complete physical examination. When the classical train of events has occurred, pain, nausea and vomiting, local tenderness, fever, and leukocytosis, nothing else is needed to establish the diagnosis. The important thing to remember, however, is that another sequence of events, or that the absence of one or more of these symptoms and signs, does not eliminate acute appendicitis. It merely means—again the former surgical resident speaks—that the diagnosis is made somewhat more difficult.

The same lack of conformity to an established norm applies to certain other considerations in acute appendicitis. The disease is undoubtedly most common in late youth and early adult life. But it also occurs at

the extremes of life, and then, as Maes and Boyce<sup>1, 3</sup> have repeatedly pointed out, it carries the highest mortality and carries it for the same old reason, that diagnosis has been delayed because of the atypical nature of the symptom complex.

Appendicitis in most cases comes on with mid-abdominal pain, which, as sometimes happens in perforated peptic ulcer, frequently arouses the patient from a sound sleep. On the other hand, many patients, particularly in the older age group, give a history of flatulence or of indigestion for a few days prior to the onset of the pain, and others give a history of recurrent slight pain in the right lower abdomen.

Like the onset, the character of the pain is protean. It may be sharp, agonizing, breath-taking or constricting. It may be merely a dull, fixed ache. It tends to begin in some area other than the right iliac fossa, but it may also begin directly over the appendiceal region. The inconstancy of the position of the pain is probably to be explained, at least in part, by variations in the position of the appendix. A pelvic appendix, for instance, is likely to cause pain in the hypogastrium, a retrocecal appendix may cause pain in the lumbar region, and an ascending appendix may cause pain in the loin.

The sequence of anorexia, nausea and vomiting should be regarded as successive stages of the same symptom complex and as indicating the wide range which the manifestations of appendiceal disease may cover. The state of the bowels cannot be relied upon from the standpoint of diagnosis. Constipation is frequent, but diarrhea, especially in children, is not infrequent. The diarrhea may be caused by purgation but it may precede the taking of the medicine and may actually be a part of the symptom complex.

The menstrual history is of particular importance, and often is the only means of differentiating between acute appendicitis and such conditions as pelvic inflammatory disease and ectopic pregnancy. In this connection special emphasis should be put upon the possibility that acute appendicitis may

develop in the course of any other condition or disease, including pregnancy and menstruation. That was another thing I learned as a surgical resident. In particular, I remember two instances in which I removed gangrenous appendices from menstruating women, whose symptoms had been belittled by their physicians on the false and dangerous reasoning that acute appendicitis cannot develop during the menstrual period.

#### PHYSICAL FINDINGS IN ACUTE APPENDICITIS

In addition to bearing in mind the possibility, or, more correctly, the probability, that the patient's symptoms differ from those of the classical picture of acute appendicitis, the physician must bear in mind the importance of doing a complete physical examination in every case of acute appendicitis. The diagnosis of the disease, or, what is more serious, the elimination of the disease by the mere laying of hands on the abdomen should be a matter for the attention of a medical district attorney.

The composite picture is the most important consideration in the atypical case of acute appendicitis. The general appearance of the patient, the temperature, pulse and respiratory rate, serve not only to suggest or eliminate medical conditions which simulate acute appendicitis, but also offer some insight into the stage of the pathologic process and the prognosis. A low temperature, or even a subnormal temperature does not eliminate appendicitis, and to wait for a rising pulse to make the diagnosis may mean also to wait for peritonitis.

Examination of the chest is important, not only to eliminate the medical conditions which may be responsible for the symptoms, but also, if appendicitis is diagnosed, to determine the proper anesthetic. Examination of the abdomen is usually done adequately because it is an obvious necessity, but failure to examine all potential hernial orifices has brought grief to many. Rigidity is not necessary for the diagnosis; to wait for it means, again, to wait in many cases for beginning peritonitis. Furthermore, it may be slight or even absent in persons with large and flabby abdomens, and often it is absent in appendices which are pelvic

or retrocecal, even when they are ruptured or gangrenous.

Hyperesthesia of the right iliac fossa does not appear in more than 50 per cent of all cases, but it is a useful sign when it is present. It may occupy all of Sherren's triangle, whether the appendix is ruptured or unruptured. In unruptured appendices, however, it is most common just to the right of the umbilicus, and in peritonitis it may be present just above Poupart's ligament. In pelvic appendicitis rectal examination is sometimes the only means of establishing the diagnosis. The obturator and psoas tests are easily performed, and Cope,<sup>4</sup> who has had a remarkably wide experience with acute abdominal conditions, considers them of great value.

#### OTHER DIAGNOSTIC MEASURES

Singer<sup>5</sup> has advocated the use of morphine in the elucidation of an obscure diagnosis in a restless, uncooperative patient, a proceeding in direct contrast to the dangers of such a plan as they are ordinarily drilled into students. He emphasizes, of course, that history and physical examination should be complete before the opiate is given. The method is of undoubted value in a small proportion of cases if its inherent risks are fully appreciated, but otherwise it is not safe. It is well to caution the patient, whenever it is used, that the relief of pain will not justify the postponement of surgery. Any one who has dealt with negro patients knows how important such a warning is; it is the general tendency in this race to regard the relief of pain as the signal for going home.

Laboratory examinations are mere adjuncts to clinical diagnosis and should be so considered. One expects an average white blood cell count of between 11,000 and 14,000, but I myself am no longer surprised at a normal count in a patient with a gangrenous appendix or a subnormal count in association with fully developed spreading peritonitis. The same statement holds with regard to the differential count and the Schilling count.

Urinalysis should never be omitted. One of the most confusing occurrences in acute appendicitis is the development of hema-

turia or pyuria as part of the symptom complex, a coincidence which is not infrequent if the inflamed appendix lies near the ureter. Albuminuria may suggest the possibility of uremia. A stool examination is sometimes helpful in the demonstration of parasites, but they are more likely to occur in association with chronic or recurrent appendicitis than with the acute variety.

#### THE DIFFERENTIAL DIAGNOSIS OF ACUTE APPENDICITIS

A discussion of differential diagnosis could easily be prolonged into a tedious rehearsal of every symptom and sign of every acute condition which can occur within the abdomen, as well as those of many diseases of thoracic, renal, and systemic origin. In actual practice each of these conditions is not called up, surveyed, and checked off or kept for further reference. As a rule, certain features of the history or of the physical examination automatically eliminate or minimize certain possibilities.

The surgical resident at Charity Hospital, so far as my own experience is concerned, must carry two chief possibilities in his mind, pelvic inflammatory disease and acute mesenteric lymphadenitis. The large proportion of negro admissions makes the differential diagnosis of acute appendicitis and acute pelvic disease an important matter which, in case of doubt, is best solved by opening the abdomen.<sup>6</sup> It is true that appendicitis is much less frequent in the negro than in the white patient, but I have seen more than one tragedy follow the strict application of that fact, for the disease is also far more serious. Patients in whom pelvic infection is localized on the right side furnish most of the trouble, and they seem to appear with diabolical frequency, though this, of course, is only apparent: Patients in whom localization is on the left side are not usually brought to the attention of the resident.

I must confess that in more than one instance I have opened an abdomen on the diagnosis of acute appendicitis only to find pus oozing from the right tube. I must also confess that on these occasions I have not felt particularly chagrined, for I do not forget that I once opened up a patient who

clinically had pelvic disease and upon whom I had almost not operated; fortunately, I changed my mind, and I dissected a gangrenous appendix off the right tube and ovary to which it was adherent. Such circumstances may be infrequent, but the risk of overlooking them is a major catastrophe which far outweighs the risk of opening the abdomen and removing a normal appendix in a case of inflammatory disease. Operation does no harm under such circumstances, experienced gynecologists agree, provided that no radical attack is made upon the pelvic organs.

Mesenteric lymphadenitis, in the experience of the Charity Hospital resident, is to the iliac appendix what acute right-sided salpingitis is to the pelvic appendix. Absolute differentiation is frequently impossible, and fortunately little harm seems to result from exploratory laparotomy. In more than one patient I have found it hard to believe that the acute clinical symptoms were due only to the enlarged glands found at operation, yet nothing else pathologic was found.

Mesenteric lymphadenitis is characterized by its frequency in children, the frequent association of a preceding upper respiratory infection, and such symptoms and signs as fever, leukocytosis, and tenderness in the right lower quadrant. The fever is variable, but is often unexpectedly high, as is the leukocytosis. The tenderness is supposed to be present in an area roughly corresponding to the root of the mesentery, and in such cases can be traced obliquely upward and to the left from the right iliac fossa toward an area just above the umbilicus.

If acute salpingitis and mesenteric lymphadenitis could be eliminated, the chief trouble-makers for the surgical resident would be out of the way. Ureteral stones, intestinal obstruction, and ruptured peptic ulcer furnish occasional problems. I once saw the abdomen opened through a McBurney incision when a ruptured gastric ulcer was present, the confusion being caused by the passage of the irritating spillage down the right lumbar gutter to the right iliac fossa. These cases, however, are excep-

tions, and extended discussion of them is not practical.

The chief point to remember is that the appendix is a versatile mimic, and that as an actor it often feels no compunction in changing its lines until they almost cease to be recognizable. On the other hand, although the diagnosis of acute appendicitis may be difficult, to visualize the anatomic picture and pathologic changes associated with this disease, and to have the picture verified at operation, is to experience some of the satisfaction which the neurologist or the neurosurgeon experiences when he localizes a lesion of the central nervous system.

#### SUMMARY

1. Because the mortality of acute appendicitis is still highly unsatisfactory, the physician as well as the layman must continue to emphasize the best method of improving it, which is early diagnosis.

2. The variability of the signs and symp-

toms in this condition makes a discussion of early diagnosis particularly urgent, as do the possibilities of confusion with other diseases, and the heavy penalties for error.

3. The chief differential problems which must be met by surgical residents at Charity Hospital in the diagnosis of acute appendicitis include acute pelvic inflammatory disease and mesenteric lymphadenitis.

#### REFERENCES

1. Maes, U., and McFetridge, E. M.: Acute appendicitis at the extremes of life. Based on an analysis of 426 cases in children under 12 and 224 cases in adults over 40 years of age, *South. Surg.*, 4:422, 1935.
2. Boyce, F. F. and McFetridge, E. M.: The essential clinical considerations of acute appendicitis, *Internat. Surg. Digest*, 22:105, 1936.
3. Maes, U., and McFetridge, E. M.: The mortality of acute appendicitis. An analysis of 186 surgical and 69 non-surgical deaths, *New York State J. Med.*, 38:1205, 1938.
4. Cope, Z.: *The Early Diagnosis of the Acute Abdomen*. 7th ed. London: Humphrey Milford, Oxford University Press, 1935.
5. Singer, Harry A.: Morphine as an aid in diagnosing acute abdominal affections, *Am. J. Surg.*, 34:5, 1936.
6. Maes, U. and McFetridge, E. M.: The justification for exploratory laparotomy in the absence of a definite diagnosis, *New Orleans M. & S. J.*, 89:539, 1937.

## THE MANAGEMENT OF THE PATIENT WITH POSSIBLE APPENDICITIS

SAMUEL KARLIN, M. D.

NEW ORLEANS

To the doctor who is called to the home to see a patient suffering with abdominal pain, several problems present themselves. The necessity for making a diagnosis is obvious, but unfortunately this is not always immediately possible. In many instances, even in this day and age when the eyes of the medical profession have been focused on the problem of acute appendicitis and the dangers attendant on purgation and delay, the signs and symptoms do not present a clear-cut picture. Of course when the classic history of vague epigastric pain, followed in a few hours by lower right quadrant pain and subsequent vomiting is offered, and is attended by right-sided tenderness and rigidity, a moderate rise in fever, say to 99°, a moderate elevation in the white blood count say to 12,000 or 14,000, an increase in the polymorphonuclear percentage with a decided shift to the left, and

the urine is clear and no puzzling menstrual history is offered, the indications for immediate surgery are clear. The attitude of *laissez-faire*, best illustrated by the application of an ice bag to the side and a regimen of liquids only, has no place in the modern treatment of acute appendicitis.

Where the diagnosis of acute appendicitis is made, there is only one course to follow and that is immediate hospitalization and operation. The hope that the symptoms will subside without surgical intervention is not to be entertained. However, the patient with classic symptoms is not our problem. It is the patient, whose story is atypical, and in whom one or more of the classic symptoms are missing, who constitutes the chief worry. For example, there may be no localized tenderness; rigidity may not be present, and there may be a history of dietary indiscretion, especially a sea-food orgy. How often have we been tempted to dismiss such a patient with the diagnosis of gastro-enteritis, and have been restrained from ordering a purgative only by the fear that the case might turn out to be one of ap-

pendicitis. Suffice it to say, such a fear is a wholesome one, and should become a part of the general medical armamentarium. No harm will have been done the patient with gastro-enteritis if purgation is delayed or entirely omitted, but a purgative to an unsuspected case of appendicitis may well prove disastrous. Statistics by Hawk and Woodhouse show that perforation was four times more common in persons who had had a laxative than in those who had not. "Cathartics remove nature's splint on the intestinal tract and increase dramatically the number of cases which go on to perforation." The problem of purgation, once its dangers are sufficiently well-realized, can be dismissed with the oft quoted maxim "In the presence of abdominal pain, never give a laxative."

#### THE DANGERS OF DELAY

The problem of delay cannot be so lightly handled. Delay in operation more than any other single factor has been responsible for the complications of appendicitis, attendant on perforation. Delay in operation may mean that the case will pass from the group, labeled simple acute appendicitis with a mortality rate well under one per cent, into the group where the pathology has extended beyond the appendix and where the mortality is in the neighborhood of 10 per cent. Statistics compiled by the Longer Life Week Committee of New Orleans, showed that of 1848 cases of appendicitis, the mortality was 2.1 per cent for 336 patients whose symptoms had been present 12 hours; 2.8 per cent for 531 patients whose symptoms had been present 24 hours; 4.2 per cent for 359 patients whose symptoms had been present 48 hours; and 12 per cent for 530 patients whose symptoms had been present 72 hours and over. Thus we see that delay increases the patient's chances of dying six to ten times. What then is the cause of this delay, granted that the doctor is responsible for a certain portion of it? Briefly this, an inability on the part of the physician to make a diagnosis from the symptoms present, a feeling that time will clarify the matter, and an unwillingness to subject a patient to an emergency operation which might eventually turn out to have

been an unnecessary procedure. But, just as an ice bag to the side and waiting is unsound in the therapy of the proved case of acute appendicitis, so too is it unsound in the management of the diagnosis of a suspected case.

#### FACTORS INFLUENCING THE DIFFERENTIAL DIAGNOSIS

The idea of waiting for events to develop and for the differential diagnosis to make itself clear with the lapse of time, is a pernicious one. Every effort should be directed towards making an immediate differential diagnosis. Nothing should be given by mouth, and no opiates allowed. The factors of local tenderness, pain, fever, urine, white blood count and differential are to be carefully evaluated, and supplemented by a rectal examination in all cases, and wherever possible, by vaginal examination. The less frequent positions of the appendix are to be considered, and the differences in clinical manifestations in these cases to be taken into account. For instance, where the appendix is of the pelvic type, abdominal rigidity and vomiting may be absent. The pain may be in the left lower quadrant, and the sequelae of irritation of the ureter, bladder, or rectum from the involved appendix, in the form of red blood cells in the urine, frequency of urination, or diarrhea, may be present. Rectal examination may be the only means of demonstrating tenderness.

With a true extraperitoneal, retrocecal appendix, the sequelae of peritoneal irritation in the form of reflex muscle splinting of the abdominal wall and reflex vomiting are absent, as is lower right quadrant tenderness. In these cases, the pain and tenderness will be concentrated in the right flank or back, and it is here that one will find the muscle rigidity. All these factors must be considered, and any indicated measures, necessary for differential diagnosis, such as a flat plate of the abdomen or cystoscopy to rule out stone, carried out immediately. Once the diagnosis of acute appendicitis cannot be definitely excluded, immediate operation should be performed.

#### TREATMENT

Some confusion apparently exists in the mind of the medical profession as to what

is meant by conservative treatment. This definitely does not apply to the treatment of acute appendicitis. There is only one treatment for acute appendicitis and that is immediate operation. Any tendency to allow such patients to wait over in order to conform to regular operating schedules is to be condemned. In patients in whom the pathology has extended beyond the appendix and a localizing abscess is forming, or a general peritonitis exists, conservative treatment as advocated by the late A. J. Ochsner should be instituted. In these instances where the patient is not seen for many hours or days after perforation has occurred, temporizing measures, such as a nasal suction for decompression of the intestinal tract, morphine for the maintenance of intestinal tone and relief of restlessness, intravenous drips to maintain the fluid requirements of the body, and a heat tent to reduce distention, offer the patient the best chances for recovery. The mortality in these patients is necessarily high,

ranging from 7 per cent in the cases which localize to 60 per cent in those with diffuse peritonitis. When a definite abscess has formed, and resolution is apparently not going to take place, as evidenced by the local signs and septic fever, then drainage of the abscess is to be carried out. Unless the appendix is readily accessible, its removal is left for a subsequent date, some months later. In those patients in whom perforation is known to have occurred only a few hours previously and there are no signs of localization, and in those patients where one cannot be certain of the status of the appendix, i. e., whether or not rupture has occurred, immediate operation should be performed.

#### SUMMARY

Purgatives should never be given the patient with abdominal pain. Every effort should be directed towards making an immediate differential diagnosis, and if the diagnosis of acute appendicitis cannot definitely be ruled out, immediate exploratory operation should be done.

### AGE FACTORS IN ACUTE APPENDICITIS

C. J. MIANGOLARRA, M. D.†  
NEW ORLEANS

It is now a generally accepted fact that acute appendicitis, although it is relatively infrequent in young children and in adults over forty years of age, offers many difficult problems in these age groups and is attended with a correspondingly high mortality. This is particularly true in our own community, perhaps because of the high proportions of negro residents, as has been forcefully brought to our attention in a series of communications by Maes and Boyce<sup>1-5</sup> dealing with acute appendicitis at the New Orleans Charity Hospital. These studies are well worth bearing in mind, and I shall refer to them frequently in this brief discussion.

The figures from Charity Hospital bear

out the statements I have made concerning both the incidence and the mortality of acute appendicitis at the extremes of life. In 2,715 cases of this disease, only 513, less than 20 per cent of the total number, occurred below the age of twelve, and only 270, 10 per cent, occurred in individuals over forty years of age. On the other hand, the two age groups which furnished less than 30 per cent of the total incidence of the disease furnished more than 55 per cent of the mortality.

#### ANATOMIC VARIATIONS IN THE STRUCTURE OF THE APPENDIX

Certain anatomic variations in the appendix during the extremes of life may play a part in the low incidence and great severity of the disease in these age groups. During the first two years of life acute appendicitis is distinctly rare, perhaps because the quantity of lymphatic tissue in the appendix is small. Abt<sup>6</sup> was able to collect from the literature in 1920 only 80 cases in children under this age, but the ravages of the disease are well illustrated by the 50 per cent mortality which he re-

†From the Department of Surgery of the School of Medicine of Louisiana State University, New Orleans.



ported. From the second year onward there is a gradual increase in the quantity of lymphoid tissue in the appendix, and a parallel increase in the incidence of acute infection, the maximum being reached at about the twentieth year. After the fortieth year there is a definite decrease in the quantity of lymphatic tissue in the appendix, and a concurrent decline is observed in the incidence of the acute disease.

An acute infection which begins in the mucosa or submucosa of a child's appendix soon invades and spreads rapidly through the lymphatic tissue. The thin-walled organ offers little resistance, and the peritoneal coat is promptly invaded. Surgical intervention before, or even at, this point is usually rewarded with a dramatic cure, but beyond this point the entire picture changes to that of general peritonitis, and the outcome of surgery is doubtful. The abdomen of the infant, with its short and poorly developed omentum, is ill prepared to keep the disease localized, and perforation of the appendix at this age usually means general peritonitis in a subject whose resistance to infection is frankly not good.

In the elderly individual the anatomic variations in the appendix take the form of a replacement of lymphatic tissue by fibrous tissue. Also observed are scarring from past infections, partial or even complete obliteration of the lumen, and vascular changes in the terminal blood vessels. Obstruction to the blood supply is easily produced, and is followed by the gangrene so frequently and so typically seen in this age group. In the child, gangrene is usually spotty and localized, but in the adult it is usually of the massive variety, widespread and involving the entire organ. These observations support the belief that in later life appendiceal disease involves the vascular system more often than the lymphatic system, a view which is also supported by the frequency of thrombophlebitis and pylephlebitis in association with acute appendicitis after the age of forty years.

#### DIAGNOSTIC DIFFICULTIES AT THE EXTREMES OF LIFE

From what has been said it is easy to see that early diagnosis is imperative if pa-

tients with acute appendicitis at the extremes of life are to be benefited by surgery. On the other hand, the obstacles encountered in arriving at a diagnosis are often almost insurmountable. In infants, for instance, one must rely entirely upon the history given by the mother, and it often proves misleading. It is a difficult task to determine whether the rigidity present is caused by pathologic changes within the abdomen, by some common ailment of childhood with abdominal symptoms, or merely by the baby's crying.

Too often physicians are satisfied with the recognition of one variety of pathology and neglect to carry the examination to completion. Acute appendicitis can and does occur in the presence of other diseases. Children very frequently show some evidence of throat infection, and the occurrence of acute appendicitis during and shortly after epidemics of upper respiratory infections has led to repeated discussion of its possible epidemiologic character.

Again, diarrhea and urinary symptoms and signs are of common occurrence in children because of the frequent location of the appendix in the pelvis. In such cases rectal examination, although it is not always satisfactory, may be of inestimable value.

After the second year, when appendicitis is more frequent, the patient develops the power of speech and becomes more cooperative and less fearful. The disease gradually assumes characteristics which are readily recognized, and when the child is able to say, "It hurts right here," we may disregard much of the mother's story and be on our way to an accurate diagnosis.

Although appendicitis under the age of six years is relatively infrequent, it is still the most common surgical abdominal disease which is encountered. After the fortieth year, however, other lesions may be present to complicate the diagnosis. One would think that the problem would become simpler when dealing with individuals at this age, but this, unfortunately, is not true. The fact that the individual has the power of speech may hinder rather than facilitate early diagnosis, especially in the elderly

male patient who does not "believe in operations" but who really suspects that he may need surgery. His self-deception may be encouraged by the disappearance of pain, as often happens after the onset of gangrene. The female patient is likely to be more cooperative, and more likely to give an accurate picture of what has occurred before the physician arrived. Her story is usually helpful, but an obese abdominal wall may introduce trouble by making physical examination unsatisfactory. The scars of other operations may confuse the picture, if the true story is not known, by introducing the possibility of partial intestinal obstruction caused by adhesions, and the institution of decompression of the intestine may cause costly delays. Pain, a cardinal symptom in other age groups, is often a minor complaint in both sexes late in life, because sensations tend to be dulled in elderly individuals.

Individual resistance always plays an important role at this time. Vascular changes throughout the body, diabetes, and chronic pathologic changes in the liver, kidney and heart, make the elderly patient an easy prey for acute infection, and by their very presence may cloud its symptoms and signs, so that recognition is delayed. The poor resistance to acute infection and the changes in the vital organs must share the responsibility for keeping the mortality in this age group higher than in any other.

Colp<sup>7</sup> considers a chill which occurs before the third day of illness of no particular significance, but regards as important chills which occur after this time. This point of view is entirely reasonable in the young adult, but not in the adult advanced in years, when chills in association with acute appendicitis are always serious. If the vascular origin of this disease in later life is true, then we may expect to see, as we do see, early chills, which usually signify thrombophlebitis.

To other diagnostic difficulties must be added those introduced by purgation. The administration of purgatives by the well-meaning mother, or, unfortunately, by the physician who uses the telephone to avoid visiting the patient, is an all too common

occurrence. The elderly patient, for some reason, has an inordinate faith in purgation. Repetition of the purgation is also very common, and it increases the necessity for a prompt diagnosis and prompt treatment. In the child or in the elderly person who has been treated by purgation, the mere suspicion that acute appendicitis may be present makes prompt surgical intervention mandatory.

#### SUMMARY

In this brief paper only a few of the important considerations of acute appendicitis at the extremes of life have been discussed. They should be sufficient, however, to remind the physician again of the seriousness of this disease in early childhood and late adult life, and to stress again the urgency of early diagnosis and an immediate resort to surgery.

#### REFERENCES

1. Maes, U.: Appendicitis in aged, *New Orleans M. & S. J.*, 78:117, 1925.
2. Maes, U., Boyce, F. F., and McFetridge, E. M.: Acute appendicitis after forty, with clinical review of 100 cases, *Am. J. Surg.*, 23:157, 1934.
3. Maes, U., Boyce, F. F., and McFetridge, E. M.: Acute appendicitis in childhood, with critical analysis of 250 cases, *Surg. Gynec. Obst.*, 58:32, 1934.
4. Maes, U., and McFetridge, E. M.: Acute appendicitis at extremes of life, based on analysis of 426 cases in children under 12 and 224 cases in adults over 40 years of age, *South. Surg.*, 4:422, 1935.
5. Boyce, F. F., and McFetridge, E. M.: Essential clinical considerations of acute appendicitis, based on analysis of 2,715 surgical cases, *Internat. Surg. Digest*, 22:195, 1936.
6. Abt, I. A.: Appendicitis in infants, *Arch. Pediat.*, 34:641, 1917.
7. Colp, R.: Chills in acute appendicitis; analysis of 2,841 cases of acute appendicitis treated in Mt. Sinai Hospital in New York, *Ann. Surg.*, 85:257, 1927.

---

### MISTAKES COMMONLY MADE IN THE TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM\*

C. S. HOLBROOK, M. D.

NEW ORLEANS

Since I have selected the title of this presentation, my own experience must, to a large degree, be called upon; however, I

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society at Alexandria, April 25, 1939.

have drawn on current medical writings for classical descriptions and charts.†

It frequently happens, in fact the exception is rare, that a physician, finding his patient presenting unmistakable symptoms indicating involvement of the nervous system by the *Spirochaeta pallida* or obtaining similar evidence from the spinal fluid examination, is content to call all these conditions cerebrospinal syphilis and to treat them all in the same manner. It is this practice that proves one of the most grievous mistakes, for treatment that will cure one patient suffering from syphilis of the nervous system will not help and may even injure another patient with a different type of involvement of the nervous system. Treatment of early syphilis, when one is dealing with a chancre or with the disease in the secondary state, can be made to follow a scheme or method which today is fulfilled by the "continuous treatment plan" which recommends for the first year not less than twenty, preferably thirty, intravenous injections of old salvarsan in conjunction with forty-five injections of bismuth or mercury.

Treatment of syphilis of the nervous system can not be so simplified, though unfor-

†Charts in this paper reproduced with the permission of Dr. John H. Stokes and the W. B. Saunders Company, Philadelphia.

tunately this is what is so often attempted. Under such a method the patient fails to improve, may even grow much worse, and the physician becomes discouraged because of this and may lose all interest in the treatment of his patient. To get the best results from treatment where syphilis has involved the nervous system it is necessary to treat each patient individually, the method and the drugs or procedures employed depending upon the particular structures involved. There is no other basis for modern treatment.

#### CLASSIFICATION

From a clinical point of view, and for purposes of treatment, the following classification is offered:

1. Meningo-vascular syphilis or syphilitic meningitis (early and late, symptomatic and asymptomatic).
2. Endarteritis (hemiplegia, arteriosclerosis, aneurysm).
3. Gumma (solitary tumor).
4. Parenchymatous syphilis.
  - a. General paralysis, paresis sine paresi.
  - b. Tabes dorsalis (parenchymatous involvement of the spinal cord).
  - c. Tabo-paresis (combination of tabes and general paresis).
5. Optic atrophy, primary or secondary.
6. Myelitic disturbances (myelomalacia).

#### SYMPTOMATOLOGY OF BASILAR MENINGITIS—(Stokes)

**Headache:** Usually severe; pain deep in the eyes; sensitive to percussion over the brows.

**Dizziness and Vomiting:** Not unusual and not distinctive.

**Stupor or Excitement:** Elaborate psychotic disturbance rare and usually due to combination with other lesions.

**Fever:** Not unusual, but apt to be atypical. Occasionally but rarely high, rarely subnormal temperature.

**Optic Neuritis and Papilledema:** Most important nerve lesion, more frequent than in any other form of brain syphilis. Examination of both fundus and fields essential.

**Ocular Muscle Palsies:** Partial oculomotor (N. III) palsies the commonest type, ptosis, diplopia, pupillary disturbance, strabismus. Total third nerve paralysis (accommodation also) usually late. Ptosis the commonest symptom. Combined pupillary and accommodational disturbance suggests tabes or paresis (Nonne).

**Other Cranial Nerve Lesions:** The combination of second and third nerve lesions with those of other cranial nerves suggests cerebral syphilis as against tabes dorsalis.

**Polyuria, Polydipsia, Pituitary Syndromes:** Relatively rare; may take the form of diabetes insipidus, infantilism, dystrophia adiposogenitalis, etc.

**Symptoms of Bulbar Lesions and lesions of the ninth, tenth, eleventh, and twelfth cranial nerves;** rare. Glycosuria, central deafness, trapezius paralysis, tongue paralyseis, etc.

In meningo-vascular syphilis we find the involved leptomeninges reacting to the invasion of the *Spirochaeta pallida* by a proliferation of lymphocytes and a lesser number of plasma cells with occasional leukocyte and endothelial cells. This exudate may be rather scanty or may be thick and jelly-like, supporting numerous miliary gummatous lesions. Almost any portion of the meninges may be involved, but basilar meningitis is most frequent and the symptoms are characteristic.

Treatment of acute basilar meningitis presents to the practitioner a major emergency. The patient may be suffering most severe headache with paralysis of several cranial nerves, the neck may be stiff, and Kernig reaction positive. The spinal fluid will show 100-1500 cells, markedly increased globulin, strongly positive Wassermann reaction, and in the colloidal gold test, usually a decided reaction in the mid-zone.

It is in a situation like this that good judgment is essential if the patient is to receive the most benefit from therapeutic efforts. Should a patient with acute meningitis be given salvarsan or neosalvarsan he is almost sure to grow worse or to develop therapeutic shock or Herxheimer reaction

and may die. Situations like this require not the arsenicals but preferably mercury by inunctions, 16 grams of the 50 per cent mercuric ointment should be used. This heroic dose of mercury may be kept up for two or three days and then reduced to daily doses of 8 grams. After 10 days of mercury inunctions, salvarsan may be added and the mercury reduced still further. It is my opinion that syphilitic meningitis is a very clear, even imperative, indication for large doses of mercury by inunctions, and nothing else will give as good results. Sodium iodide in fairly large doses is recommended though no reliance is to be placed on this drug; it may be of some help, but mercury is the sheet anchor in therapy.

In endarteritis we are dealing with a lesion of an artery, great or small, from the large vessels forming the circle of Willis to the finer terminal vessels. In a sense this is not a part of syphilis of the nervous system but is primarily syphilis of the vascular apparatus; the changes in the central nervous system are secondary and result from deprivation of the blood supply. The spirochetes affect the coats of the artery and usually produce thrombosis of the vessel and death to the part of the brain dependent upon this vessel.

#### CHARACTERISTICS OF PARALYTIC ACCIDENTS IN VASCULAR NEUROSYPHILIS—(Stokes)

Paralyses may be partial or total, mono-, hemi-, or triplegias.

Onset may be sudden, but is often gradual with gradual recovery.

Gradual ascending or descending paralysis may occur.

May be no signs of insult such as loss of consciousness, convulsions, etc., even in sudden and total paralyses.

Lesion may be central, not cortical.

Triplegias are uncommon; both extremities of one side, one of the other.

One paralysis may follow another or convulsions may affect a previously paralyzed limb.

Marked tendency to recovery is the rule; rarely fatal. The commonness of thrombosis as contrasted with arteriosclerotic hemorrhage is the explanation.

Aphasia is common often with a monoplegia or hemiplegia or a seventh nerve paralysis. Usually motor in type and transient.

Bulbar symptoms may develop from thrombosis of the frequently involved basilar artery; ocular paralyses, disturbance of speech and swallowing reflexes, with crossed paralysis of the extremities.

No sensory disturbance in most cases.

Pupillary changes usually absent (uncomplicated cases).

Occasional central hemianopsia.

## SEROLOGY OF VASCULAR NEUROSYPHILIS—(Stokes)

- Blood Wassermann reaction: Usually positive, but often negative.  
 Spinal fluid Wassermann reaction: Positive in about 50 per cent of the cases.  
 Globulin: Slightly increased or normal.  
 Cell count: Slightly increased or normal.  
 Colloidal test: Negative or not distinctive.

## DIFFERENTIAL CONSIDERATIONS IN VASCULAR NEUROSYPHILIS—(Stokes)

- Patient too young for arteriosclerosis.  
 Syphilitic history may be obtainable (or may not).  
 External collateral signs of syphilis are likely to be lacking.  
 The blood Wassermann reaction may be positive (or may not).  
 The spinal fluid examination may be positive (or may not).  
 The therapeutic test may be meaningless (spontaneous recovery).  
 The diagnosis may have to be made by exclusion:  
 No gross arteriosclerotic signs (inspection, palpation, blood-pressure).  
 No demonstrable renal insufficiency (uremic hemiplegia or convulsions). Urine and blood urea normal.  
 No cardiac lesion to explain a thrombosis or embolus.  
 No acute infection.  
 No disease causing vascular injury: Leukemia, pernicious anemia, diabetes, alcoholism, metallic poisoning (arsphenamin, etc.).  
 Among the possibilities consider: Arteriosclerosis, idiopathic apoplexy in youth; brain tumor; multiple sclerosis; uremia; hysteria; migraine with hemiparesis; general paralysis; solitary tubercle of the pons; heart disease in young syphilitic patients.

## TREATMENT

Treatment of vascular neurosyphilis depends upon the time that the patient is first seen. If paralysis has existed for months there is no need of energetic treatment. However, if there is only partial paralysis much depends upon heroic measures and again mercuric ointment in very large doses should be employed, with or without sodium iodide intravenously. Paralysis, mono or hemiplegia, occurring in a young person whose blood pressure is not high and who does not present choked discs and other evidence of cerebral tumor, should be treated at once for vascular syphilis. Time is very precious and treatment should not be delayed an hour. Inunctions of mercury should be given at about the time of the spinal puncture and before the fluid can be reported. In endarteritis the spinal fluid will be negative in about 50 per cent of the cases. After treatment with mercury has arrested the thrombotic process or done what was possible toward that end, regular treatment can be commenced with salvar-

san and the heavy metals and continued for two or three years.

Solitary gummata from the size of a marble to a large lemon are rather rare and produce symptoms of a tumor which in fact they are. One should never hazard the diagnosis of a gumma before operation and it is often the pathologist who speaks with finality. There is no medicinal treatment for gumma (solitary) of the brain; only surgery will give relief. It is a well established observation that the symptoms and signs of most tumors of the brain seem to improve temporarily under antisyphilitic treatment if the patient is in bed; therefore, one must not be misled by this apparent improvement.

General paralysis or paresis is a most serious disease; it is responsible for about one-eighth of all admissions to state institutions for mental diseases. About 5 per cent of those who contract syphilis and are not adequately treated will develop general paresis. In this disorder the gray matter of

## SYMPTOMATOLOGY OF PARETIC NEUROSYPHILIS—(Stokes)

Amnesia: Especially for recent events.

Consciousness clouded; intake impaired, fatiguability increased, hallucinosis rare.

Judgment impaired; oversuggestibility, fantastic delusions, grandiose, paranoid; insight into illness, slight or nil.

Quick-shifting Emotions.

Irritability or Hebetude.

Character Change.

Conduct Slump: Violent rages, sexual escapades and excesses.

Nervous Disorders: Headache, visual disturbance, tremor, ataxia.

Speech Disorders: Dysarthria, aphasia, vocal change.

Writing Disorders: Tremor, omission of letters and words.

Pupillary Changes: Argyll Robertson pupils, pupillary irregularities, transient anisocoria. Pupillary changes may occasionally be slight.

Reflex Changes: Exaggeration most common (taboparesis excluded).

Seizures: Epileptiform, hemiplegic, aphasic, most typically transient and repeated.

Facies: Flattened nasolabial fold. Relaxation, mental "let down," tremulousness, vacuity.

Serologic Picture: Strongly positive blood and spinal fluid Wassermann, positive globulin, cell count under 100, repeated first zone colloidal test.

Paralyses and Contractures (late).

the cerebrum is involved. Due to the activity of the spirochetes or their toxins the cells are destroyed or affected in such a way they are not able to function. The brain becomes smaller, convolutions are less well marked, and, as a consequence, progressive mental deterioration is the principal clinical picture.

Treatment of general paresis has been revolutionalized during the past fifteen or twenty years. Prior to that time all patients with paresis died within three years after admission to a hospital, and those who were treated with the then available antisyphilitic agents (salvarsan and mercury) died sooner. Consequently, the therapeutic outlook for paretics became most pessimistic, for the new and much lauded salvarsan did not help these patients but actually made them worse, especially when administered in large doses. The spectacular change in the prognosis of this disease was brought about by Wagner von Jauregg's introduction of malarial treatment and the development of other methods of producing hyperpyrexia within the patient. Of almost equal significance to the fever treatment has been the addition of tryparsamide to our therapeutic armamentarium.

If treatment of paresis is carried out along general lines with various arsenicals,

bismuth and mercury and iodides, only discouragement and disaster will follow such a mistaken procedure. Of all forms of syphilis of the nervous system general paresis is the one that requires particular treatment with measures not generally used for any of the other types of involvement. In capable hands modern treatment of paresis with tryparsamide and malarial treatment will lead to restoration or to marked improvement in 65 per cent of the patients treated. The spinal fluid, even in patients showing most satisfactory response to treatment, may persist in being abnormal but treatment must not be too energetic after marked improvement in the patient's general condition has taken place. Just when treatment should be discontinued can not now be determined, but one should be warned against continuing too active treatment.

The organism of syphilis attacking the parenchyma of the spinal cord, especially the dorsal tracts, produces the best known neurosyphilitic lesion, tabes dorsalis. This disorder is fairly readily diagnosed once the condition is considered, though some of the less frequent symptoms, as gastric crises, frequently lead the medical man and his surgical confrere into much embarrassment and grief.

IMPORTANT SYMPTOMS AND SIGNS OF TABES DORSALIS—(Stokes)

<i>Symptoms</i>		<i>Signs</i>	
	<i>Per cent</i>		<i>Per cent</i>
Lightning pains .....	73-88	Argyll Robertson pupils.....	80
Visual symptoms .....	44	Reduced or absent lower cord reflexes..	70-90
Difficulty in urination.....	43-68	Romberg sign .....	43-96
Trouble in starting		Sensory disturbance and dissociation....	49-58
Dribbling afterward		Diminished pain	
Nocturnal frequency and		Diminished vibration sense (bone	
"bed-wetting"		fork conduction)	
Paresthesias (numbness,		Diminished sense of motion and po-	
prickling, etc.) .....	40-58	sition	
Ataxia .....	37-87	"Cord" (atonic) bladder.....	43
Strabismus .....	12	Trophic changes .....	12-19
Diplopia .....	11	Charcot joints	
Girdle sense .....	10-31	Malum perforans	
Visceral crises (gastric, rectal,		Optic atrophy .....	6-9
laryngeal) .....	10-22		
Loss of libido and potentia.....	6-25		
Failing vision .....	6		
Ptosis .....	5-23		
Vertigo .....	4-13		
Deafness .....	1-4		

Combined from the statistics of Nuzum, Lucke, and Stokes and Shaffer, aggregating approximately 1,500 cases.

Treatment here, especially after the disease process has been brought under fair control and its activity abated, should be rather mild. It is a mistake to over-treat the tabetic, for often their resistance is low and over-enthusiastic treatment may do further damage. Seldom can one cause a complete restoration to normal; he should aim to arrest the condition and to secure 25 to 75 per cent improvement. After the spinal fluid has been normal for months or years, treatment should be largely supportive and symptomatic with only occasionally mild anti-syphilitic therapy.

Tabo-paresis indicates the presence in the same patient of tabes dorsalis and general paresis, representing parenchymatous involvement of the spinal cord and the brain. This is not a very unusual clinical picture. Treatment should be directed toward arresting the most destructive process which is the brain pathology. Therefore, the same measures that are employed in the modern treatment of paresis will give the best results.

Optic atrophy is a serious threat to the patient, and the practitioner will do well to

request a consultation, for not infrequently he is blamed if the patient loses his sight. Real therapeutic aid is needed and should be sought through conference. I have had very good results in these patients by the use of the Swift-Ellis treatment. Where optic atrophy is present tryparsamide should be employed, if at all, most guardedly as this drug may itself hasten or produce atrophic changes in the optic nerve. Progressive optic atrophy is a serious condition and must be energetically combated.

Myelitic disturbances may be produced by spinal meningitis (an integral part of cerebrospinal meningitis), by involvement of the arteries of the cord, or by direct invasion of the spinal cord by the *Spirochaeta pallida*. These lesions are prone to produce the symptoms of a transverse lesion of the cord; that is, paralysis, motor and sensory, below the site of the lesion. Signs and symptoms of such a lesion call for very active treatment. It is here again that mercury injections can be depended upon to give the best results.

SUMMARY

An attempt has been made to point in-

directly, and at times directly, to mistakes often made in the treatment of syphilis of the nervous system. If we try to understand the principal pathology present in our patients and direct treatment with that pathology in mind, but not forgetting the patient as a whole, we may then expect satisfactory results.

## BIBLIOGRAPHY

Cannon, A. Benson: Optimal treatment for early syphilis, based on a twenty-year trial of arsphenamine, bismuth, and mercury preparations, *Am. J. Syph., Gonorr. & Ven. Dis.*, 21:155, 1937.

Cannon, A. Benson, and Robertson, Joycelin: The choice of bismuth or mercury with arsphenamine in the treatment of early syphilis, *J. A. M. A.*, 106:2133, 1936.

O'Leary, Paul A.: Present day status of treatment of neurosyphilis, *J. A. M. A.*, 109:1163, 1937.

Solomon, Harry C.: *The Practitioner's Library of Medicine and Surgery*, New York City, D. Appleton-Century Co., 1931.

Stokes, John H.: *Modern Clinical Syphilology*, Philadelphia, W. B. Saunders Co., 1936.

## DISCUSSION

Dr. Edmund McC. Connely (New Orleans): When I looked over Dr. Holbrook's paper I had one serious fault to find: The situation that he brought up was beyond all argument, and he covered it to such an extent that he left very little for the discussor to say.

I hereby agree with him in regard to the situation. There isn't any question that we should realize fully, in all probability we do realize, that the different types of central nervous system syphilis must be handled differently if we are to get results. We should all remember that it is a natural tendency to drop into therapeutic habits and that we all naturally tend to standardize treatments to a great extent. I believe that the most important differentiation we have to make—of course there is no question about the treatment of the acute luetic—is to differentiate parenchymatous from other types of syphilis, not only because of the harm we can do by delaying treatment in the more acute phases, by wasting treatment, not giving treatment for the parenchymatous types, but because of the actual damage we can do. I remember 25 years ago, before fever therapy was introduced, to make a diagnosis of paresis was practically to pronounce death sentence, but with the advance of the fever therapy our hopes began to rise and with the advent of tryparsamide what was at one time a hopeless situation was very much improved. Tryparsamide and fever therapy have come to be so well known that we now have a situation that has some potential dangers. The tendency is to use it in many cases where it is not indicated, and the tendency is to take chances with it, especially with tryparsamide. There is not any question but that it can do serious damage especially to the optic nerve. Every patient who gets tryparsamide should have

thorough examination of his eye fields, and no patient who shows any evidence of optic nerve irritation should use tryparsamide because of its tendency to irritate the optic nerve, and it can very well produce blindness. So it is always essential not only to make an initial examination but to check carefully the nerve throughout treatment with tryparsamide, and with this tryparsamide and fever therapy our paretics are very much more hopeful.

Dr. Louis Ochs (New Orleans): I would like to ask Dr. Holbrook about his preference for old salvarsan in general syphilis. I have never seen it used by any of the public health institutes or the Charity Hospital clinic. I may be mistaken, but I do not think the special clinic at Touro, of which Dr. Holbrook is director, uses it. I would like to know why he uses it.

Dr. A. A. Herold (Shreveport): I would like to ask Dr. Holbrook, in closing, to explain the specific danger of a patient with syphilitic meningitis or paresis in the central nervous system being put on the arsphenamines, such as tryparsamide, right away.

I would like to ask how often he uses spinal punctures for these cases and, also, a few years ago, he reported some results with Dr. Lanford in the use of sodcku organism for producing fever; does he still use it?

I do not want to anticipate him in answering Dr. Ochs' question, but I have felt for a long while that we do not get results with new salvarsan as it is too concentrated. Old arsphenamine is used in dilution and enters the tissues of the body in lower specific gravity; whereas neoarsphenamine is given concentrated in a 10 or 20 c.c. syringe. I have wanted for some time to make experiments with neo diluted to 200 c.c. and see if I would not get results. I have a patient with paresis who had been under treatment three years. I first saw him in convulsions. The man had only one eye, which complicated treatment. But I gave him rest treatment and then specific treatment. I am now giving him, about every three months, one course of neoarsphenamine and one of tryparsamide. His Wassermann still remains four plus, although he is clinically improved and feels well.

Dr. J. P. Sanders (Caspiana): I want to ask Dr. Holbrook if patients who have malaria constantly for two or three years are prevented from having central nervous system lues? In country practice we have very little of this type of lues and have a great deal of malaria. One observer in Central America noted that central nervous system syphilis is very seldom seen where malaria is epidemic. That is the experience I have had in my own practice.

How many of these patients whom we treat for syphilis, asymptomatic lues, do we expect to have central nervous system lues?

I want to emphasize what Dr. Holbrook said



about tryparsamide when optic atrophy has started. Is tryparsamide going to make it worse? I have been told to leave it off, and told to go on. I do not know what to do. In two or three patients where there has been early optic atrophy, I have given tryparsamide with no effect (seemingly) on the eye. Often when optic atrophy sets in the eye is going blind regardless of what is done.

In closing, I would like Dr. Holbrook to say something about personal resistance that these syphilitics have. I talked to a man today and we both agreed that a great many patients will get well of their syphilis without any treatment, some will get well with little treatment, and many will not get well with all the treatment we are going to give them.

Dr. C. S. Miller (Jackson): I agree with Dr. Holbrook that diagnosis of central nervous system lues should be made. My main purpose in speaking is to enter a plea for diagnosis of syphilis in that type where it can best be treated, and that is the asymptomatic stage. In early syphilis there is invasion of the central nervous system and a good percentage of these patients continue to have involvement of this system; the paresis we see twenty years later is the patient with asymptomatic syphilis who has continued since the primary and secondary stages. There is too much temerity on the part of physicians in getting spinal fluid punctures and trying to determine whether the patient has asymptomatic neurosyphilis. All patients who have had syphilis three years should have a spinal puncture when admitted for treatment. All patients placed under treatment with primary or secondary syphilis should have a spinal puncture after six months of treatment, in order to determine whether any one of these patients has asymptomatic neurosyphilis. I hope all physicians will determine whether or not they have a positive spinal puncture before treating or before discharging them.

Dr. C. S. Holbrook (In conclusion): I am going to start with the last gentleman first and thank him for mentioning the spinal puncture. I believe today that a physician lends himself to a malpractice suit if in the treatment of syphilis he does not examine the spinal fluid of his patient, or at least make a request. A man is so frequently told that he is all right after six or ten blood Wassermans are negative, treatment is discontinued, and he forgets about the syphilis and marries. Ten to 15 years later, he develops meningo-vascular syphilis or paresis. I believe that a very strong case could be made against any physician who did not examine the spinal fluid during the period of treatment of the patient. Of course, the patient may refuse to have the spinal puncture done and in that case a note should be made on the office or hospital record that an effort was made to have the spinal fluid examination but it was declined. The treatment of syphi-

lis of the nervous system is largely controlled and regulated by the spinal fluid and we get one spinal fluid every two to six months, certainly every year; and after the spinal fluid becomes negative, we still do an occasional spinal fluid examination.

True, a large proportion of persons with active syphilis will show mild changes in the spinal fluid; probably 60 to 79 per cent of cases will show increased cells or increased globulin. Occasionally the Wassermann may be positive, but if abnormal findings are present that does not mean the patient is going to develop active cerebrospinal syphilis, but means that the patient should be carefully watched. About 8 to 10 per cent of the people who develop syphilis will develop syphilis of the nervous system, and 5 per cent of patients with syphilis of the nervous system will develop paresis.

Dr. Sanders talked about the infrequency with which patients who have malaria have paresis. There has been some evidence to indicate that these patients do not so often develop paresis or even nervous system syphilis, but I do not think it has ever been well established.

In the cases of optic atrophy one sees, the question comes up, "What should the treatment be?" The patient is losing his sight, is going blind, and often we are unable to stop the process. It is decidedly hazardous to give tryparsamide in an advanced optic process, in a patient in whom the disease is progressive, because one is apt to get credit for producing blindness. There are those who believe that tryparsamide may be given to some of the cases where the process is not active, where there is just an old scar, but then it should be done gradually and under control. I believe the Swift-Ellis treatment of syphilis is best applied to these cases of advancing optic atrophy. When there is just some damage, I believe one can give tryparsamide, and if the patient takes the first 10 or 12 doses of tryparsamide successfully without eye damage he is apt to have no trouble with the following injections. If it is going to produce any harm, this usually occurs in the first series of treatment.

As to the resistance of patients to syphilis, Dr. Dyer used to teach that 25 per cent of people who get syphilis had enough resistance to get over it. I believe a good many people who have syphilis are never sick from it. I know one gentleman who had syphilis for 56 years and it did not bother him until recently. When he was 77 years of age he began to develop diplopia and showed a very high cell count and a positive spinal fluid. He had contracted the disease before he was married. He married, was president of a bank, sent a daughter through one university and a son through another, and his wife died of tuberculosis. He had been perfectly well these 56 years, and then when he was quite old, finally the balance between re-

sistance and activity of the spirochete went in favor of the spirochete.

Dr. Herold had a good many disturbing questions, one of which was the objection to giving tryparsamide in cases of meningitis. I referred especially to meningitis, not so much paresis but meningitis. There is tremendous exudate over the brain, a white jelly-like exudate, and anything that might light that up, that might exaggerate it, occurring within the skull where expansion can not take place, any activity of this already active process will create increased intracranial pressure and do damage. And we know salvarsan does cause therapeutic shock or Herxheimer reaction, an exaggeration of already existing symptoms. Therefore, it is wise to quiet this process with mercury or bismuth. That is true of any type of syphilis of the nervous system. It is well to get it under control before giving arsenicals.

I used sodoku fever successfully in a few cases. I tried it out and it works, but is not quite as good as malaria. It has one advantage; that is, it can be given to patients who can not be successfully inoculated with malaria because of resistance.

I should think in the case Dr. Herold mentioned he would seriously consider giving the patient malaria. He is already getting some salvarsan. We give our patients tertian malaria; we inject 2 c.c. of blood into the veins and 2 or 3 c.c. under the skin and hope the patient will contract malaria, and then we let him have 16 or 18 chills and high fever. I think that malaria produces the best results, and I would advise it in such a case as Dr. Herold reports.

Dr. Ochs asked a question about salvarsan. I am not in charge of the Touro Clinic at present, but when I was we did use old salvarsan. Stokes and Cannon state that salvarsan has greater therapeutic value though slightly more toxic. It is a little harder to give; with neosalvarsan you do not have to overcome the acidity, you do not have to add sodium hydroxide. Throughout the country, by men who have studied the value of it, salvarsan is held more efficacious than neosalvarsan, though for office practice the latter is most frequently used and is satisfactory.

---

## COR PULMONALE\*

B. R. HENINGER, M. D.†  
NEW ORLEANS

The purpose of this contribution is to bring to the attention of the Louisiana

---

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†From the Department of Medicine of the School of Medicine of Louisiana State University, and from Touro Infirmary in New Orleans.

State Medical Society a cardiac disorder which at the present time is so little known that with few exceptions it is actually not being recognized by physicians other than cardiologists. I refer to the condition known as cor pulmonale, which recent clinical and pathologic evidence has shown to be of rather frequent occurrence and which has probably in the past been mistaken for other clinical states.

Cor pulmonale, to use Brill's definition, is a cardiac disorder characterized by strain and failure of the right side of the heart and caused by cardiac-pulmonary lesions which disturb the lesser (pulmonary) circulation. According to White, the condition was not mentioned in the literature until 1933, when, in association with Brenner, he described it in a contribution entitled "Pathological and Clinical Aspects of the Pulmonary Circulation." In a personal search of the literature extending back to 1928 I can find no earlier article on the subject, and I am impressed also with the conspicuously few papers which have been published concerning it since it was recognized as a clinical entity.

Brill divides cor pulmonale into the primary and secondary varieties. The primary group is made up of cases in which right ventricular strain or failure occurs independently and apart from left ventricular failure, as the result of a sudden obstruction of the trunk or of the first branches of the pulmonary artery by embolism, or, more rarely, by rapid thrombosis. Subdivisions of this group include acute cor pulmonale, subacute cor pulmonale, and chronic cor pulmonale. The secondary group includes the cases in which cor pulmonale results from a pre-existing left ventricle failure. This variety is obviously more frequent than the primary variety, and its manifestations are therefore more generally recognized.

### CASE REPORTS

The present contribution is limited to a report of typical cases of the primary variety of cor pulmonale, together with a discussion of the important clinical features of the condition.

CASE NO. 1

A white male, 62 years of age, was admitted to Touro Infirmary on the service of Dr. F. L. Loria, with the complaints of weakness, anorexia, and loss of weight. A complete clinical and laboratory study, including roentgenographic examination, pointed to the diagnosis of gastric malignancy. The heart was apparently normal in size and function.

Exploratory laparotomy revealed a malignancy of the greater curvature of the stomach, with extensive involvement of the mesentery. Surgery was clearly impossible, and the abdomen was closed at once. Within 24 hours the patient became very cyanotic, his respirations became shallow, and his temperature rose steadily, reaching 102° F. just before death, at which time the pulse rate was 120 per minute. Repeated examinations of the

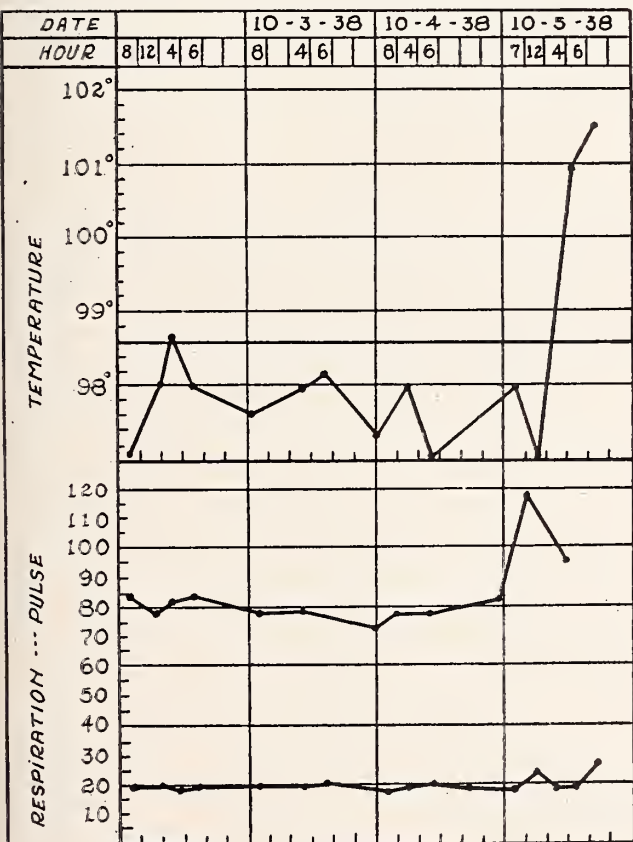


Chart 1

chest after operation revealed numerous scattered subcrepitant rales. Death finally occurred very suddenly, apparently from an acute cardiac condition, and autopsy revealed an extensive pulmonary thrombosis and an acute dilatation of the right heart (chart 1).

CASE NO. 2

A white male, 63 years of age, entered Touro Infirmary on the service of Dr. Emile Bloch for the performance of bilateral inguinal hernioplasty. He seemed an excellent surgical risk, and presented no apparent abnormalities on careful preoperative examination. Operation was done under local anesthesia, and convalescence was without incident

for the first week. Then, with lightning-like rapidity, the temperature and respiratory rate rose sharply, and the patient seemed extremely ill

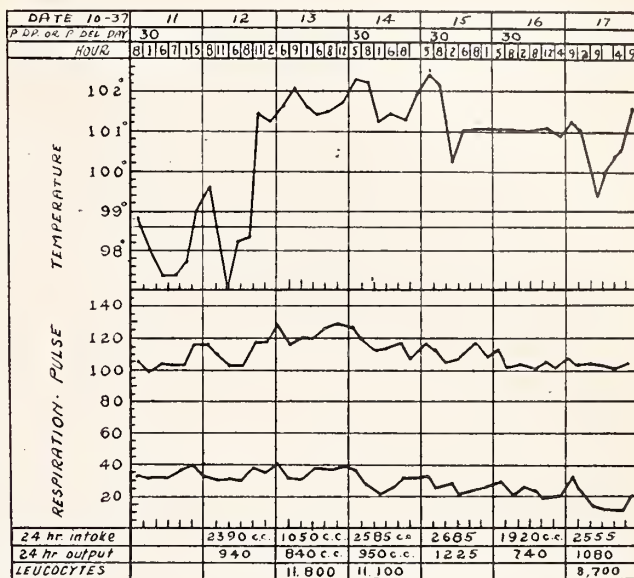


Chart 2

(chart 2). The leukocytic count was 11,800, and an electrocardiogram was suggestive of coronary occlusion. Numerous scattered rales were apparent over both lungs. Within five days, although no special form of therapy was employed, all clinical signs disappeared, the lungs were entirely clear on repeated examinations, and the leukocytic count fell within the normal range. Today, 18 months later, the patient is in excellent health and active in his affairs.

It should be noted that in both these cases the postoperative picture simulated acute coronary occlusion. The symptoms were ushered in abruptly with pronounced shock, pallor, falling blood pressure, and a weak pulse, followed by a rising temperature and a raised leukocytic count.

CASE NO. 3

A stockbroker, 67 years of age, had been confined to his home for a period of 10 months for a cardiac condition; he was allowed up for only four hours each day, and spent the rest of the time in bed. The background of the cardiac disability was arteriosclerosis, and he had marked emphysema and bronchiectasis, with an occasional attack of angina.

Suddenly, at the beginning of the eleventh month of his illness, the patient experienced a rise in temperature, an increased respiratory rate, marked cyanosis, and profuse bronchorrhea. Examination of the chest at this time revealed numerous subcrepitant rales (chart 3) over the right base,

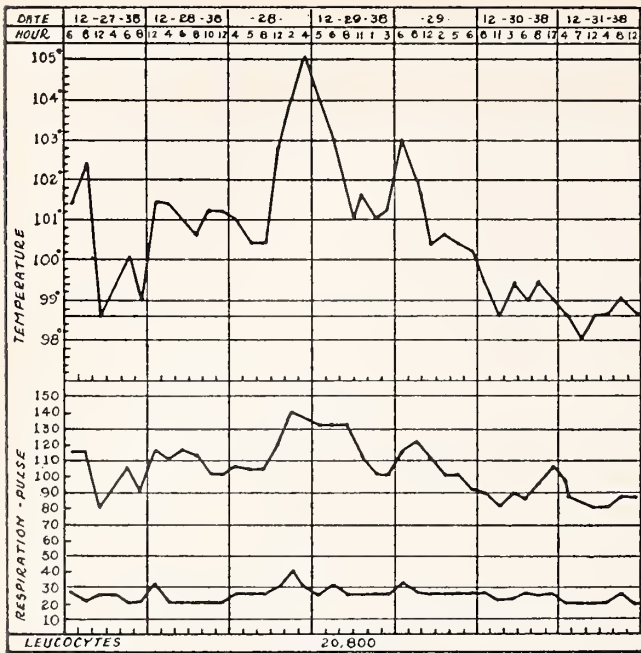


Chart 3

and a spreading pneumonia was feared. The blood pressure fell to 96/60, from the previous 145/70, and the leukocytic count was 20,800.

The clinical course for the next 48 hours definitely precluded the pneumonia which had been tentatively diagnosed. The temperature fell to normal, the leukocytic count decreased, the blood pressure rose to 135/70, and the patient seemed improved in every way. At the end of another 48 hours the lungs were entirely clear. Since pneumonia would never present such a picture, the obvious diagnosis was cor pulmonale resulting from pulmonary thrombosis. At this time a more detailed investigation of the patient's previous history revealed the fact that some six months before he had experienced a similar episode. Convalescence was much slower, however, than in the experience just described.

This case is typical of the variety of cor pulmonale likely to be encountered in bedridden cardiac subjects. Shock is not so profound as in the postoperative variety. The onset is associated with marked dyspnea, cyanosis, bronchorrhoea, falling blood pressure, and rising pulse, temperature, and leukocytosis. Emphysema and pulmonary fibrosis are outstanding. The whole picture is suggestive of a rapidly spreading hypostatic pneumonia, but the diagnosis is not borne out, as the case just described makes clear, by the rapid clinical improvement which usually occurs.

#### DIAGNOSIS

The diagnosis of acute cor pulmonale still is often overlooked, just as the diagnosis of

many other diseases is often overlooked, because the condition is not kept in mind. Diagnosis is not always easy, but it is usually possible to identify the disease if certain considerations, which make recognition more likely, are kept in mind.

Cor pulmonale tends to occur in patients of advanced years, or past middle age, rather than in young persons. The cases reported in this paper are entirely typical as regards age. Recent surgical procedures, the occurrence of a phlebitis, or the pre-existence of some cardiac condition often furnish the clue to diagnosis. Indeed, the importance of a consideration of recent events prior to the onset of acute cor pulmonale cannot be overemphasized in the differential diagnosis.

The physical signs are variable, and there is no classical picture. On the other hand, cyanosis, accentuated  $P_2$ , a friction rub over the base of the heart, and gallop rhythm are usually prominent. The moisture in one or both lungs may sometimes suggest a massive edema. Leukocytosis is the rule.

Roentgenograms have not proved particularly helpful, but McGinn and White are of the opinion that electrocardiograms may furnish valuable information. That has not been my experience. In my own cases the electrocardiogram has often confused rather than assisted in the differentiation of cor pulmonale from acute coronary occlusion and dissecting aneurysm of the aorta.

#### DIFFERENTIAL DIAGNOSIS

The conditions most likely to be mistaken for acute cor pulmonale are rapidly spreading hypostatic pneumonia, acute coronary occlusion, pulmonary collapse, and dissecting aneurysm. Of these, only coronary thrombosis and spreading pneumonia are important enough and difficult enough to furnish special problems. The usual rapid subsidence of symptoms and signs in the cases which go on to recovery promptly differentiates the condition, as in case 3 reported herewith, from rapidly spreading pneumonia. The fall in both temperature and leukocytosis is particularly helpful. The comparatively rapid recovery from the initial shock, plus the type and mildness of

the pain, in many instances differentiates the condition almost immediately from acute coronary occlusion. Pulmonary collapse is associated with unmistakable signs of fixation of one side of the thorax, either from a bronchial obstruction or from spontaneous pneumothorax. The absence of any evidence of important heart disease before the attack, according to White, helps to rule out pulmonary edema of cardiac origin and cardiac asthma.

The signs and symptoms of acute cor pulmonale frequently subside promptly. On the other hand, many cases terminate fatally shortly after the onset, and the total mortality is in the neighborhood of 50 per cent. Some cases become prolonged into heart failure and pulmonary edema before death finally ensues.

#### TREATMENT

The treatment of acute cor pulmonale is chiefly aimed at the underlying etiologic condition, pulmonary embolism. Recent advances in surgery have made embolectomy a practical procedure in a few cases, but in the majority it does not seem rational, and the results likely to be attained are highly problematical.

My personal impression is that patients with cor pulmonale suffer from two possibilities: The first is that the condition may be mistaken for something else; the second is that if and when the correct diagnosis is made, there is a decided tendency toward over-treatment. Many patients, I am convinced, lose their lives because the physician tries to do too much for them. Absolute rest is the first consideration. Morphine and atropine should be administered by hypodermic, and digitalis in supportive doses may be of value. The free use of oxygen by nasal tube or tent is advised in all cases.

#### SUMMARY

1. Attention is called to cor pulmonale, a cardiac disorder characterized by strain and failure of the right side of the heart and caused by cardiopulmonary lesions which disturb the lesser (pulmonary) circulation.

2. Three typical cases are reported and discussed.

3. Points in diagnosis, with especial ref-

erence to differential diagnosis, are considered.

4. It is emphasized that the treatment of cor pulmonale is very simple, and the general tendency toward over-treatment is deprecated.

#### BIBLIOGRAPHY

1. Brill, I. C.: Cor pulmonale, *Mod. Concepts of Cardiovascular Disease*, Am. Heart Assn., Nov. 1938.
2. Brill, I. C. and Robertson, T. D.: Subacute cor pulmonale, *Arch. Int. Med.*, 60:1043, 1937.
3. McGinn, S. and White, P. D.: Acute cor pulmonale resulting from pulmonary embolism, *J. A. M. A.*, 104:1473, 1935.
4. Rothschild, M. A. and Goldbloom, A. A.: Clinical studies in circulatory adjustments, *Arch. Int. Med.*, 61:600, 1938.
5. White, P. D.: The acute cor pulmonale, *Ann. Int. Med.*, 9:115, 1935.
6. White, P. D. and Brenner, O.: Pathological and clinical aspects of the pulmonary circulation, *New England J. Med.*, 209:1261, 1933.

#### DISCUSSION

Dr. J. E. Knighton, Sr. (Shreveport): Dr. Heninger has discussed the condition under consideration in such an elaborate manner that further amplification seems unnecessary.

It has occurred to me that one might be justified in raising the question as to whether the term "cor pulmonale" is really justified in designating the pathologic condition under consideration as a clinical entity.

Would it not be just as well to think of the picture in terms of the pathology that exists, that is, acute obstruction of the pulmonary circulation with secondary right cardiac dilatation and failure?

In the case reported in which autopsy was done, should the death certificate show "cor pulmonale" as the cause of death, or would it be more comprehensive to state that this patient died from pulmonary thrombosis with secondary right cardiac dilatation and failure?

This is not intended as an adverse criticism of Dr. Heninger's paper, the subject matter and discussion of which were most interesting.

Dr. A. L. Levin (New Orleans): I would like to ask Dr. Heninger to enlighten me on one or two points in his most interesting presentation. In the first two cases, "cor pulmonale" developed postoperatively. Was the blood studied carefully in those patients before the operation? I understood him to say they were anemic. Has the anemia, abnormal bleeding and coagulation, or vitamin deficiency anything to do with the development of "cor pulmonale"? According to your statement, those patients did not show any cardiac disorder preoperatively. The first case was one of malignancy; no doubt there was anemia and vitamin deficiency. It stands to reason that the heart muscle must have been weakened and in such an instance cardiac disease postoperatively is liable to develop. Has vitamin B deficiency any influence

on the development of "cor pulmonale" preoperatively or postoperatively?

Dr. B. R. Heninger. (In conclusion): The first patient was an elderly man of 62 who had the malignancy for a variable length of time and said he had been treated by a gastroenterologist for quite some time. The exact red cell count, I am not prepared to tell you; I do not know.

We know that anemias, marked anemia, secondary or primary anemias, have caused a decreased amount of oxygenation in the myocardium, and naturally, produced anginal symptoms, but we cannot possibly, that is to me, understand why an anemia in this man could possibly have produced pulmonary thrombosis.

The second case, a postoperative case also, was that of a fine, healthy individual, who owned hotels in the North and in Florida. He, on his way to take over a hotel in Florida, decided to come South to have a hernioplasty done. As I described this case to you, if this man had any anemia at all it was not evident.

The subject of avitaminosis, so far as the heart is concerned, Weiss, Walker, and Wilkins have definitely shown that in pellagra and other conditions which cause a hydrosopic condition, and reduction of water there is enlargement of the heart. We know that the physiology is slightly different. While hypertrophy of the heart may result from arteriovenous fistula, there is a necessary increase in the amount of blood to feed this extra amount of muscle mass, but as far as avitaminosis is concerned, I cannot see how that would be a factor in the production of pulmonary artery disorders.

There was a very interesting article in reference to this, which came out of the Mayo Clinic a year and a half ago on the general subject of embolism, in which quite a number of cases were reported. Barnes, who reported these cases, showed that the majority of the cases of embolism were disturbances of the peripheral circulation following operations either in the pelvis, or lower abdomen, or extremities. He showed that these cases in which emboli took place within a period of two weeks usually resulted in a period five to six days following operation. They further showed that these numerous cases in which emboli were present, occurred in people, mostly normal subjects, who were extremely active. So they proceeded for some years to massage the lower extremities of all patients who had operations in the pelvis, lower abdomen, and extremities, with the result that the cases of emboli postoperatively were materially lessened, lessened to such a degree that it could not possibly be just coincidental.

Now, as to the subject of thrombosis of the pulmonary artery, which we are beginning to believe now makes up the larger number of these cases, we are at a loss to know exactly why they occur. Since this paper was assembled, which was

some two months ago, I have seen and could add three more cases of pulmonary thrombosis which I personally observed at the autopsy table at Charity Hospital without looking for them; one case of sickle cell anemia in a young colored girl with congestive heart failure, and you may say possibly that congestive heart failure may have been the factor. That case is still being studied.

We now must admit that many factors and conditions may be responsible for cor pulmonale. It is not my intention to create new terminology, by calling your attention to cor pulmonale, but to relate its frequency and with an endeavor to make our members more conscious of cor pulmonale that the condition be recognized, and not be mistaken for other clinical states.

---

## THE TREATMENT OF TRICHOMONAS VAGINALIS VAGINITIS WITH SODIUM PERBORATE

A PRELIMINARY REPORT OF 14 CASES\*

EARL CONWAY SMITH, M. D.†  
NEW ORLEANS

The experimental and clinical work which has been done to establish the identity of the causative organism of the condition commonly known as *Trichomonas vaginalis* vaginitis is almost bewildering. Even more bewildering are the various methods of therapy which have been suggested for its relief. Thus aldarson is advised by Bland and Rakoff;<sup>1</sup> carbasone by Gospe<sup>2</sup> and by Drabkin;<sup>3</sup> floradex and devegane by Karnaky;<sup>4</sup> picric acid by Goodall<sup>5</sup> and by Mintz;<sup>6</sup> silver picrate by Winther<sup>7</sup>, by Buxton and Shelanski;<sup>8</sup> quinine by Kahn;<sup>9</sup> acetarsone by Gellhorn,<sup>10</sup> by Bland and Rakoff,<sup>1</sup> and by Pattyson;<sup>11</sup> lactose and citric acid by Adair and Hesseltine;<sup>12</sup> and beta lactose by Roblee.<sup>13</sup>

Many of these methods, it will be noted, are merely modifications of other methods. The percentage of cures reported varies from 35 to 100 per cent. Very few of the authors report more than 90 per cent, and most of them report far less.

The method which I am presenting herewith for the treatment of vaginitis due to

---

\*Read before the Orleans Parish Medical Society October 9, 1939.

†From the Department of Obstetrics and Gynecology of the School of Medicine of Louisiana State University.

trichomoniasis has been extremely satisfactory in the 14 patients in whom I have used it. This is a small series, I am aware, but I am making this preliminary report in the hope that the plan will be tried out by others. It is being used at present in all cases of this variety of vaginitis which are admitted to the services of the Louisiana State University School of Medicine in Charity Hospital at New Orleans.

The plan of treatment is based on the use of sodium perborate, in combination with certain very simple instructions and prohibitions. I might say at this point that I am familiar with the brilliant report of Hibbert and Falls,<sup>14</sup> who demonstrated to their own satisfaction the relationship between *Streptococcus subacidus* of Holman and vaginal trichomonads. It has not, however, influenced my plan of treatment. I have also purposely neglected such matters as the pH concentration of the vaginal secretion and the restoration of a normal vaginal flora. These, I believe, can safely be ignored, for normal conditions will be restored when once the offending organisms are eradicated, precisely as conditions return to normal after infection of the mouth or rectum. Elaborate laboratory studies are thus avoided, and the plan of treatment is greatly simplified.

Diagnosis has presented no difficulty. Trichomonads are easily identified if a few drops of secretion taken from different locations in the vagina are placed on a glass slide, diluted with warm normal saline solution, and examined at once, under a microscope. The difficulty in *Trichomonas vaginalis* vaginitis arises in treatment, and I have no doubt that before I adopted the present plan I lost more than one patient because of a natural unwillingness to continue indefinitely a plan of therapy which seemed to be producing no results.

#### PLAN OF THERAPY

In 1933, after an unsatisfactory experience with several chemicals, I found that sodium perborate, when used according to a definite plan, gave excellent results. The chief points of management, after the diagnosis is made, are as follows:

1. The patient is examined carefully, to determine local conditions and to detect foci of infection in the bladder, cervix, Skene's and Bartholin's glands, and the rectum, as well as in the vagina.

2. The vaginal secretions are tested with litmus paper. The reaction of the vaginal secretion must be mildly acid before treat-

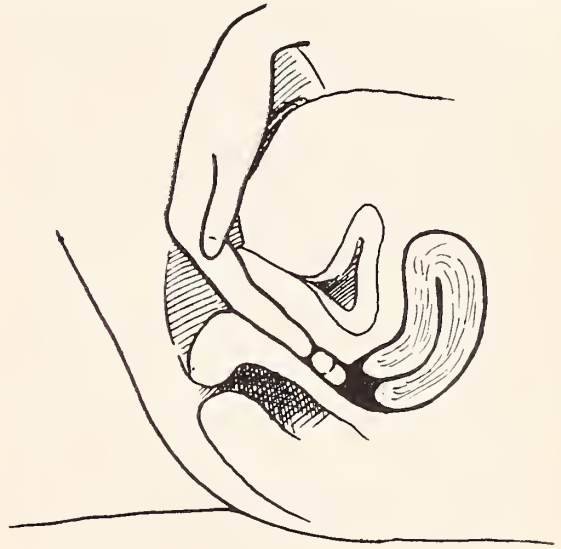


Fig. 1  
Showing method of  
inserting capsule into vagina—

ment is begun. If the reaction is alkaline, it is best to give a douche of lactic acid solution (U. S. P., one dram to one quart of water) before inserting the capsule of sodium perborate.

3. The vagina is gently swabbed with a cotton pledget to remove secretions, this step being omitted if it proves too painful.

4. One capsule (#12 veterinary), containing 1 gram of sodium perborate, is inserted deep into the posterior vaginal fornix with an instrument or with the rubber-gloved fingers. The capsule may be lubricated with K-Y jelly to facilitate its entrance. Thereafter the capsule is inserted by the patient herself early in the morning.

5. A vaginal douche of sodium perborate solution (15 grams of sodium perborate to one quart of luke-warm water) is taken at bedtime, slowly, in the reclining position.

6. This procedure is followed for 10 days after the first negative vaginal smear is ob-

tained. The entire course of treatment usually covers a period of 12 to 15 days.

7. Vaginal smears are examined immediately after the next three menstrual periods. If trichomonads are not detected in these smears, the patient is considered cured.

8. If severe burning in the vagina follows treatment, the patient is directed to take a douche, as prescribed, at once, and to return to the office. In such cases the dosage of sodium perborate is probably too strong and must be decreased.

The special instructions which are given to the patient to be carried out during treatment include the following:

1. Intercourse is forbidden.
2. Restriction of activity is advised.
3. Shower baths are to be used in preference to tub baths.
4. Drugs and douches, except as directed, are forbidden.
5. Douche apparatus and bath towels must be sterilized before use.
6. Toilet seats must be washed daily.
7. After a bowel movement, cleansing must be in the direction of the sacrum and away from the vagina.
8. Proper care of the hands is essential to avoid mouth to vagina infection.

The 14 cases which comprise this series treated by sodium perborate include 12 non-surgical gynecologic cases, one obstetric case, (three months postpartum) and one surgical gynecologic case (two months postoperative). The average duration of treatment was 12 days. The single recurrence was promptly cured by a resumption of treatment. This patient lived out of the city and treatment was not entirely satisfactory because close observation was not possible. When the recurrence was noted, she was requested to remain in town; then, without variation of the plan of treatment, a cure was promptly effected.

#### CASE REPORT

A detailed case report at this point will illustrate both the effectiveness of the sodium perborate method and the ineffectiveness of other methods of treatment:

Mrs. A. W. (Case #14), aged 31 years, was first

seen December 4, 1936, at which time the diagnosis of *Trichomonas vaginalis* vaginitis was made. After the secretions had been removed with cotton pledgets, silver picrate powder (one vial) was introduced into the vagina with a special vaginal insufflator. The patient was instructed to take a douche the following morning composed of three tablespoonsful of vinegar to one-half gallon of luke-warm water. For the next three days a silver picrate suppository was inserted into the vagina at bedtime and a vinegar douche taken the following morning.

Office treatment was repeated December 7 and December 9, and instructions were given to continue the suppositories and douches at home. Examination on each of the office visits revealed as many trichomonads in the vaginal secretion as on the first visit.

December 24, when the patient seemed restless under her lack of improvement, three floroquin tablets were inserted into the vagina and the patient was instructed to insert two tablets t. i. d. at home, and to omit douches. This treatment was continued until January 6, 1937; examination on each office visit revealed many trichomonads in the vaginal secretion.

January 6 to January 20 silver picrate insufflations and suppositories were resumed, again without improvement. January 20, another form of treatment was used: One anayodin suppository was inserted into the vagina, and the patient was directed to take a douche of vinegar solution (three tablespoonfuls to one-half gallon of luke-warm water) the next morning. This treatment was used continuously until February 22, 1937. During this whole period repeated examinations of the rectal secretion and of the urine were constantly negative for trichomonads. The patient was also following instructions as to restricted activity, prohibition of intercourse, care of the toilet seat, and similar matters.

February 22 three devegan tablets were inserted in the vagina and the patient was instructed to insert one daily. On her return to the office March 8, trichomonads were still present in the vaginal smears.

On this date sodium perborate was used, according to the method described, and the patient was instructed to continue the treatment at home, taking a sodium perborate douche each night and inserting a sodium perborate capsule into the vagina each morning. On her return two days later the vaginal smears for the first time were negative for trichomonads. She returned to the office every second day for three visits, and on each of these occasions the smears were negative. She was discharged March 18. Examination after each of the next three menstrual periods was negative for trichomonads, and she has remained clinically well to date, some 16 months after she was discharged as cured.



## RESULTS OF TREATMENT

Following the use of sodium perborate, the burning and irritation of which the patient complains will disappear within 24 hours. An almost equally prompt improvement takes place in the discharge. It ceases to be watery, malodorous and creamy in color, and becomes somewhat chalky in consistency and practically without odor, although it remains profuse. Normal vaginal secretions will be observed within two to four days after a cure has been obtained.

The microscopic picture also changes promptly after the sodium perborate treatment is begun. The predominance of leukocytes, trichomonads, epithelial cells and bacteria disappears and is replaced by a predominance of adult epithelial cells, interspersed with dead trichomonads, an occasional pus cell and few bacteria. By the fourth or fifth day of treatment it is difficult to demonstrate even a dead trichomonad.

Vaginal examination reveals a change in the original findings. Examination at first is difficult because of extreme local tenderness, and the mucosa appears stippled and hemorrhagic. Shortly after treatment is begun there is a noticeable diminution of tenderness and the mucosa appears hyperemic. The hyperemia disappears when local treatment is discontinued and three to five days later the vaginal mucosa seems entirely normal.

Sodium perborate, which is a powerful oxidizing agent, reacts with the lactic acid of the vaginal secretion to form sodium lactate, boric acid, and hydrogen peroxide. The chalky appearance of the subsequent vaginal discharge is due to the precipitation of sodium lactate and boric acid. The good effects secured are due to the combined oxidizing action of sodium perborate and hydrogen peroxide, plus the antiseptic value of boric acid.

In the usual case the dosage mentioned, one gram of sodium perborate in a #12 veterinary gelatin capsule, combined with a douching solution of 15 grams to a quart of lukewarm water, is entirely satisfactory. The usual course of treatment requires the use of 14 capsules of sodium per-

borate and 8 ounces of sodium perborate in bulk.

In very severe cases the patient may complain of burning due to the chemical. If this happens, the dose in the capsule should be reduced to 0.5 gram. Almost immediate relief is secured by the taking of a douche of the drug in the usual solution or the use of a douche of warm water or of sodium bicarbonate solution. In the first case treated by this method the patient sustained a superficial burn of the mucosa because the sodium perborate was used in too large a dose. The burn healed promptly and cure was effected with equal promptness, but it is evident that caution should be exercised when, as is occasionally necessary, doses larger than 1.0 gram are used.

This method of treatment is being continued in appropriate cases. I am particularly interested in studying its effect in urethral, bladder and rectal infections, in pregnancy, and in negro patients.

## SUMMARY AND CONCLUSIONS

1. The very fact that so many plans of treatment for *Trichomonas vaginalis* vaginitis exist is an indication that no method is entirely satisfactory.
2. A series of 14 cases is presented in all of which cure was effected promptly by the use of sodium perborate in capsules and douches. One of these cases is described in detail.
3. The method is simple, prompt, harmless, and economical. One advantage is that it can be applied, for the most part, by the patient herself.
4. Although this is merely a preliminary report, the good results suggest that the method is perhaps the most effective presently available.

## REFERENCES

1. Bland, P. B. and Rakoff, A. E.: Investigation of new pentavalent arsenical aldarsons in treatment of trichomonas vaginitis, *Am. J. Obst. & Gynec.*, 32:835, 1936.
2. Gospe, S. M.: Treatment of trichomonas vaginitis, *Calif. & West. Med.*, 41:172, 1934.
3. Drabkin, C.: P-carbamino phenyl arsonic acid in treatment of *Trichomonas vaginalis* vaginitis, *Am. J. Obst. & Gynec.*, 33:846, 1937.
4. Karnaky, K. J.: *Trichomonas vaginalis* and *Monilia albicans* as causes of leukorrhoea, *South. Med. J.*, 28:795, 1935.
5. Goodall, J. R.: Specific treatment for vaginitis, *Lancet*, 2:648, 1933.

6. Mintz, M. E.: New and effective treatment for trichomonas vaginitis, *J. Mt. Sinai Hosp.*, 3:14, 1936.
7. Winther, N.: Treatment for trichomonas vaginitis with silver picrate, *Minnesota Med.*, 19:731, 1936.
8. Buxton, R. von L. and Shelanski, H. A.: *Trichomonas vaginalis* vaginitis; incidence, diagnosis and treatment with silver picrate, *Am. J. Obst. & Gynec.*, 33:846, 1937.
9. Kahn, I. W.: Treatment of *Trichomonas vaginalis* vaginitis with sodium perborate and quinine, *Am. J. Obst. & Gynec.*, 28:511, 1934.
10. Gellhorn, G.: Treatment of trichomonas vaginitis with acetarsone (stovarsol), *J. A. M. A.*, 100:1765, 1933.
11. Pattysen, R. A.: *Trichomonas vaginalis* vaginitis; laboratory and clinical study, *New York State J. Med.*, 37:41, 1937.
12. Adair, F. L. and Hesseltine, H. C.: Histopathology and treatment of vaginitis, *Am. J. Obst. & Gynec.*, 32:1, 1936.
13. Roblee, M. A.: Vaginitis and cervicitis, *J. Missouri State M. A.*, 34:285, 1937.
14. Hibbert, G. F. and Falls, F. H.: Further observations on role of streptococcus in so-called *Trichomonas vaginalis* vaginitis, *Am. J. Obst. & Gynec.*, 36:219, 1938.

## DISCUSSION

Dr. E. L. Zander (New Orleans): Dr. Smith deserves a lot of credit for the experimental work he has done in this particular field. Donne, in 1836, was the first one to do any work of this type on this particular organism and described it. It shows that it has been a long time since anything has been done in this field. Scanloni and Kolliker and Bland wrote articles on this organism but the treatment is most important.

Several men have brought out the importance of trichomonas infection in connection with gynecologic and obstetric conditions. Greenhill showed that 36 per cent of cases he had in his clinic showed this infestation.

The treatment started by Dr. Lee in 1920 consisted of mopping out the vagina with soap and water and then with general antiseptic cleaning out the vagina with bichloride of mercury, after which sodium bicarbonate douches were used. This treatment did not meet the results expected and Gellhorn suggested dry treatment.

Since then treatment has varied and some men have modified the various treatments. Picric acid suppositories were used. Silver picrate douches and silver picrate suppositories have been used by me with good results.

Since speaking with Dr. Smith, I have used the method he described in several patients and have had splendid results.

Dr. Earl C. Smith (In conclusion): I have one case report that I would like briefly to tell you about. It was a patient who was two months postpartum and I tried everything, from picric acid on down, trying to satisfy myself as to the real value of some of the drugs on the market today. Each time I prescribed an individual drug, it was accurately recorded and I followed specific directions. In three instances I wrote to certain pharmaceutical houses which had put up these drugs asking them their advice on how to cure that particular patient. I had examined her so thoroughly I was convinced definitely that the infection was localized

in the vagina. Examination of her husband was negative.

After using these drugs for four or five months, I had exhausted the patient's patience and mine too. Then I resorted to the use of sodium perborate. On the third day of treatment with sodium perborate, I obtained a negative smear for the first time in five months. The patient was discharged in ten days.

The other drugs are of great value and many reports that I will receive later on probably will condemn the use of sodium perborate. I will welcome any reports given, however, as, so far, it has proved satisfactory.

—o—

## ENDOMETRIAL CHANGES AND THEIR RELATION TO OVARIAN DYSFUNCTION\*

J. R. KRIZ, M. D.†

AND

H. J. SCHATTENBERG, M. D.†

NEW ORLEANS

Within recent years it has become increasingly important to the clinician to know the significance of abnormal endometrial changes and their relation to ovarian dysfunction. With a suitable method at hand, devised by Randall,<sup>1</sup> for the microscopic examination of the uterine mucosa, we took up the study and a review of the factors concerned with the normal and abnormal changes in the endometrium due to disturbance in ovarian function.

While the menstrual cycle has been studied by many observers, Schroeder,<sup>2</sup> Novak and TeLinde,<sup>3</sup> Herrell and Broders,<sup>4</sup> and others, it was Hitschman and Adler<sup>5</sup> who first described the various changes in the endometrium during the normal menstrual cycle and showed that there was a correlation between the physiologic changes of the endometrium with the stages of the ovarian cycle. Previous to this epochal work, many, if not all, menstrual irregularities were ascribed to inflammatory changes in the uterine mucosa (endometritis).

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

†From the Department of Pathology, School of Medicine, Tulane University, New Orleans, La.

## PHASES OF MENSTRUAL CYCLE

As the result of these observations, the normal endometrial changes are now commonly divided into four phases of the menstrual cycle, namely: Early proliferative, late proliferative, early differentiative and late differentiative. We have had an occasion to study microscopically many endometria and find that our observations are in common with those of Herrell and Broders.<sup>4</sup> In the early proliferative phase, which occurs during the first week after menstruation, the endometrium is forming new tubular glands apparently derived from the sub-basal layer. The glandular cells show a cuboidal type of epithelium with centrally placed nuclei. There is slight cellular proliferation in the loose stromal tissue. In the late proliferative phase, which follows the first and occurs the second week, the tubular glands are increased in number and although straight are considerably dilated. This and the first phase is influenced by the follicular hormone, estrin. It is in this second phase that the graafian follicle is undergoing maturation. The third or early differentiative phase is distinguished by beginning convolutions of the formerly straight tubular glands. The glandular epithelial cells are now columnar in type with the nuclei situated nearer their bases. The stromal tissue cells are definitely increased in number. This phase is dependent upon the early activity of the corpus luteum hormone and consequent disappearance of the graafian follicle. The fourth or late differentiative phase, sometimes termed the premenstrual phase and which occurs the fourth week of the menstrual cycle, is characterized by an advanced stage of differentiation, the tubular glands showing marked tortuosity. The glandular epithelial cells are now definitely columnar with the nuclei at the bases. Glycogen material is seen in many of them indicating secretory activity. At about the time of menstruation the stromal tissue becomes engorged with blood and infiltrated with polymorphonuclear and mononuclear cells. Following the normal degeneration of the corpus luteum toward the end of this phase, the stimulus for progesterone dis-

appears, resulting in dissolution of the epithelial cells terminating in menstruation.

## MORPHOLOGIC VARIATIONS

Since it has been shown that the morphologic variations of the endometrium depend upon a normal balance between the follicular and corpus luteum hormones of the ovary, attempts were made to interpret the histologic findings in the endometrium on the basis of partial or complete ovarian failure. Herrell and Broders<sup>4</sup> have shown where there is an arrestment of the process of regeneration in the proliferative phase it usually indicates partial ovarian failure at least to the degree of corpus luteum deficiency. This so-called "persistent proliferative phase" of endometrium we have found occurs in elderly women with amenorrhea and other menopausal symptoms. Microscopic examination of the endometrium in these cases showed few small straight tubular glands, simulating the early proliferative phase of menstrual cycle. Years ago this type of endometrium was termed hyperplastic endometritis. In many of the endometria examined cystic changes were noted giving the so-called "Swiss-cheese" type of endometrium. Duhig<sup>6</sup> claims that this cystic hyperplasia is associated with follicular dysfunction, the prolonged action of estrin causing the cystic changes. Kaufman<sup>7</sup> believes the imbalance between these hormones causes the proliferative phase of the endometrium to become exaggerated, preventing the onset of the differentiative phase with the shedding of the uterine mucosa as in normal menstruation. The bleeding in some of these cases is apparently due to the overproduction of follicular hormone and the prevention of the formation of a corpus luteum.

In young women with irregular menstrual bleeding we have found in most cases a differentiative type of endometrium both in the early and late phase, depending upon the degree of activity of the corpus luteum hormone, progesterone. Here, too, there is slight ovarian failure probably due to lack or absence of the factor which initiates the complete desquamation of the epithelium. From a clinical point of view its importance

lies in the fact that it is the primary cause of functional uterine bleeding and administration of A. P. L. hormone which is luteinizing in its action, is frequently of value. By the action of this hormone, the arrested proliferative phase continues its regeneration to the differentiative and regular menstruation occurs.

In women where there was complete ovarian failure due either to natural or artificial causes, we have found in most instances atrophy of the uterine mucosa. It is natural that atrophy will result when there is complete absence of both estrin and progesterone, the phase of proliferation being dependent upon the action of the former, while the latter influences the differentiative phase. Microscopically the endometria examined showed a single layer of epithelial cells overlying a loose connective tissue stroma.

#### THE ROLE OF OVARIAN TUMORS

Regarding the role played by certain ovarian tumors and their relation to endometrial changes, we have found a study of the uterine mucosa, with the aid of clinical manifestations, is of importance in interpreting the underlying pathology. Based on clinical and pathologic study, ovarian tumors may be divided into three groups, namely, feminizing, masculinizing and neutralizing varieties. In group 1, that is those that have a feminizing effect, are included the granulosa cell and theca cell tumors. In both there is an oversecretion of the follicular hormone, estrin. When a granulosa cell tumor develops in women past menopause, there is a re-establishment of menstruation due to overproduction of follicular hormone. However, when such a tumor develops in a child, the hormonal effect is more pronounced, causing precocious puberty with development of the breasts, premature menstruation and early growth of genital hair. Histologically the tumor cells resemble closely the granulosa cells lining the normal graafian follicle. Geist<sup>8</sup> and Meyer<sup>9</sup> studied the endometrium in these conditions, describing a hyperplastic type of endometrium, the hyperplasia being due, according to Meyer, to proliferation of granulosa cells with augmentation

of the normal hormonal effects. Thomsen and Stabler,<sup>10</sup> in their report, describe the endometrium as being thick but no true hyperplasia was noted. Pratt<sup>11</sup> described the endometrium as being hyperplastic, showing many cystic changes. We have had an occasion to study the folliculoid type of granulosa cell tumor removed from a young girl, the endometrium being carefully studied at the same. The microscopic picture of this endometrium was that seen in the late proliferative phase with numerous small cystic areas.

Since the theca cell tumor also produces an excess of estrin, the symptomatology is the same as in the granulosa cell tumor. This type of ovarian tumor usually occurs in women past the menopause and causes irregular menstrual bleeding. Melnick and Kanter,<sup>12</sup> Neely,<sup>13</sup> and others in their reports of theca cell tumor make no reference to the endometrial changes associated with this type of ovarian neoplasm. In our study of the luteinized type of theca cell tumor, removed from a woman 42 years of age and in whom irregular menstrual bleeding occurred three years following her menopause, we found the endometrium was in the late proliferative phase of the menstrual cycle. Microscopically the tumor showed whorls of connective tissue cells with elongated nuclei surrounding islands of round cells with hyperchromatic nuclei, some showing mitotic figures. Scattered throughout the tumor were islands of large oval cells with a poorly stained, foamy cytoplasm.

Group 2 comprises those tumors which have a masculinizing effect, namely, the arrhenoblastoma and the hypernephroma. The arrhenoblastomas arise from undifferentiated testicular cells which in their development produce an oversecretion of the "male sex hormone", testosterone. The clinical manifestation such as amenorrhea, change in voice, hirsutism, and hypertrophied clitoris are due to overproduction of this hormone. Baldwin and Gafford<sup>14</sup> described a hyperplastic endometrium associated with an atypical type of arrhenoblastoma. Maxwell<sup>15</sup> examined the endo-

metrium and found it atrophic in the lower half of the uterus and thickened in the upper half. Meyer<sup>16</sup> found atrophy of the uterine mucosa associated with amenorrhea. A study of the endometrial changes in a woman with atypical arrhenoblastoma and in whom marked secondary sex characters were present, showed definite regression or atrophy such as one sees when there is complete ovarian failure.

The other ovarian neoplasm included in this group is the hypernephroma or adrenal cell rest tumor. There is still some doubt as to the origin of these rare ovarian tumors. It is thought by some that they arise as the result of misplaced adrenal cells in the ovary. Since there is an oversecretion of the adrenal gland hormone, cortin, the adrenal cell rest tumors bring about changes in women similar to those seen in the arrhenoblastomas. The histologic picture resembles the adrenal cortex with small nuclei surrounded by a clear cytoplasm. They likewise simulate the cortical adenomas which are also masculinizing neoplasms. The adrenal cell rest tumor which we have had an opportunity to study, occurred in a woman 44 years of age. Secondary sex characters were present but not to such a degree as is seen in women with arrhenoblastomas. Microscopically, the tumor cells resemble those of the adrenal cortex. The endometrium in this case was thin, with a few small tubular glands, resembling an atrophic type of endometrium.

In group 3 are placed those ovarian tumors which have a neutralizing effect, namely, the dysgerminoma and Brenner's tumor. The former differs from other ovarian tumors in that it occurs both in the female and male gonads. This tumor is common in pseudohermaphrodites, cryptorchids, and those with poorly developed gonads. Clinically these patients show no signs of feminization or masculinization since no hormones are liberated by the tumor cells. Meyer<sup>16</sup> was first to describe accurately the histology. Wolfe and Kamnester<sup>17</sup> described the gross and histologic pathology of this neoplasm but no mention

is made regarding the type of endometrium. The two dysgerminomas which we have studied occurred in young women showing no anatomic changes except infantile genitals. In both cases the tumor was unilateral, one about 11 cm. in diameter, the other about 18 cm. Microscopically, both tumors consisted of large rounded cells with little cytoplasm, irregularly arranged in masses separated by narrow strands of fibrous connective tissue. The nuclei were round and vesicular with an occasional mitotic figure. In one case there was an alveolar arrangement of the cells separated by connective tissue stroma, containing lymphocytes. In both cases the endometrium histologically resembled the late proliferative phase of the menstrual cycle.

In 1907 an ovarian tumor termed "oophoroma folliculare" was reported by Brenner<sup>18</sup>. Meyer<sup>19</sup> classified Brenner's tumors into two types, a solid and a cystic. Clinically these tumors are benign, usually unilateral and in over 50 per cent of the cases reported occur in women over 50 years of age. They have no special biologic effect. Smith<sup>20</sup> in his report of a Brenner's tumor described the endometrium as being in the premenstrual phase. Gnassi's case<sup>21</sup> was associated with a subacute endometritis. Proescher and Rosasco<sup>22</sup> state in most cases the uterus is without abnormalities. Our observation of Brenner's tumor of the cystic type, occurring in an elderly woman without clinical manifestations, showed the tumor to be about 8 cm. in diameter. On microscopic study, there was a dense fibrous connective tissue stroma. Scattered throughout this were numerous large and small nests of epithelial cells. These nests were made up of large rounded cells with a light-staining cytoplasm, containing small hyperchromatic nuclei. Many such cystic areas were seen throughout the section. These cysts were lined with cuboidal epithelium and contained a pink-staining homogeneous substance. An atrophic type of endometrium was found in this case.

#### SUMMARY

1. The uterine changes of the normal menstrual cycle are briefly described.

2. The endometrium is now commonly divided into four phases: The early and late proliferative which are dependent upon the follicular hormone, estrin, and the early and late differentiative which are influenced by the corpus luteum hormone, progesterone.

3. Under certain conditions the endometrium may show cystic areas, the so-called "Swiss cheese" endometrium. Endometria of this type are particularly seen at the time of the menopause and are believed due to follicular dysfunction.

4. Atrophy of the endometrium follows complete absence of both the follicular and corpus luteum hormones.

5. Various ovarian tumors which exert a hormonal effect, and the endometrial changes associated with each type, are described.

#### REFERENCES

- Randall, L. M.: Endometrial biopsy, *Proc. Staff Meet. Mayo Clinic*, 10:143, 1935.
- Schroeder, R.: Anatomische Studien zur normalen und pathologischen Physiologie des Menstruationszyklus, *Arch. f. Gynäk., Berl.*, 104:27, 1915.
- Novak, E. and TeLinde, R. W.: Endometrium of menstruating uterus, *J. A. M. A.*, 83:900, 1924.
- Herrell, W. E. and Broders, A. C.: Histological studies of endometrium during various phases of menstrual cycle, *Surg. Gynec. & Obst.*, 61:751, 1935.
- Hitsemann, F. and Adler, L.: Die Lehre von der Endometritis, *Ztschr. f. Geburtsh. u. gynäk.*, 60:63, 1907.
- Duhig, J. V.: Pathology of metropathia hemorrhagica; study of 112 cases of irregular uterine hemorrhage, *M. J. Australia*, 1:67, 1931.
- Kaufman, C.: Therapeutics with ovarian hormones, *J. Obst. & Gynaec. Brit. Emp.*, 42:409, 1935.
- Giest, S. H.: Theca cell tumors, *Am. J. Obst. & Gynec.*, 30:480, 1935.
- Meyer, R.: Hypertrophy of uterine mucosa following ovarian tumors, especially in menopause, *Zentralbl. f. Gynäk.*, 49:1682, 1925.
- Thomson, J. G. and Stabler, F.: Lipoid rich granulosa cell tumor with discussion on theca cell tumor, *J. Obst. & Gynaec. Brit. Emp.*, 45:769, 1938.
- Pratt, F. B.: Granulosa cell tumors of ovary; review of literature, *J. Obst. & Gynaec. Brit. Emp.*, 44:880, 1937.
- Melnick, P. J. and Kanter, A. E.: Theca cell tumors of ovary, *Am. J. Obst. & Gynec.*, 27:41, 1934.
- Neely, J. M.: Theca cell tumor of ovary, *Am. J. Clin. Path.*, 7:293, 1937.
- Baldwin, L. G., and Gafford, J. A.: Arrhenoblastoma (case report), *Endocrinology*, 20:373, 1936.
- Maxwell, A. F.: Masculinizing tumors of ovary, *West. J. Surg.*, 45:134, 1937.
- Meyer, R.: Pathology of some special ovarian tumors and their relation to sex characteristics, *Am. J. Obst. & Gynec.*, 22:697, 1931.
- Wolfe, S. A. and Kaminester, S.: Embryonal carcinoma of ovary (disgerminoma), *Am. J. Obst. & Gynec.*, 29:71, 1935.
- Brenner, F.: Das Oophoroma folliculare, *Frankfort Ztschr. f. Path.*, 1:150, 1907.
- Meyer, R.: Uber verschiedene Erscheinungsformen der als Typhus Brenner bekannten Eirstockgeschwulst, ihre Absonderung von den Granulosazelltumoren und Zuordnung unter andere Ovarialgeschwülste, *Arch. f. Gynäk., Berl.*, 148:541, 1932.
- Smith, P. H.: Brenner tumor of the ovary, *Am. J. Obst. & Gynec.*, 30:734, 1935.
- Guassi, A. M.: Brenner's tumor, *Am. J. Obst. & Gynec.*, 33:516, 1937.
- Proescher, F. and Rosasco, J.: Ovarian tumor of Brenner type, *Am. J. Cancer*, 28:291, 1936.

#### DISCUSSION

Dr. John S. Couret (New Orleans): I think Dr. Kriz is to be commended for bringing to our attention at this time the study of endometrium and its relationship with the ovaries, as far as we have been able to go at the present time. This study of the endometrium by biopsy is a relatively new diagnostic procedure in medicine and, in my opinion, the surface of its possibilities has only been scratched. We are able to determine relatively few conditions by the microscopic examination of the endometrium, but as time goes on, I believe—and I would like to express this point—that this procedure will be and should be used more and more, and as we get to know more and more about it we are going to be able to diagnose more conditions, particularly in the female genitalia. I would like to feel that besides the diagnosis of certain tumors of the ovary and certain other conditions of the ovary, that we will, as we go, learn more about the subject, be able to diagnose and treat conditions properly in the other ductless glands throughout the body.

There is one point, going back to the ovary, I would like to mention. The gynecologist is, of course, extremely cognizant of cystic disease of the ovary or multiple follicular cysts of the ovary. Some men will puncture these cysts, others will do various specific operations on the ovary in order to cure this disease which is so prevalent. It is my opinion that we can, by further study of the endometrium of these patients, diagnose these conditions preoperatively and probably take care of these ovaries by merely some form of endocrine therapy.

Dr. W. R. Mathews (Shreveport): A practical aspect of this subject concerns the limitations of the histologic diagnosis. I have been attempting to interpret uterine scrapings and endometrial biopsies for the past fifteen years and one of my greatest difficulties has been to secure information indicating the phase of the menstrual cycle at which the curettement was performed, or data concerning the menstrual disorder present. In my experience the late proliferative type of endometrium has been the most frequent histologic finding in curettings. Whether or not this has always been significant, one could not say without knowing the phase of the cycle. Prior to the menopause the proliferative type of endometrium is normal during the first two weeks of the menstrual cycle but is abnormal in the third and fourth weeks, indicating a lack of luteal effect. If the late proliferative

type should be obtained from a patient who had had uterine bleeding for several days or weeks, the interpretation would be persistent estrogenic effect or hyperplasia. I have found the "Swiss cheese" type of endometrium most frequently at the two extremes of menstrual life; in girls and young women and in older women approaching the menopause. Another endometrial pattern occasionally encountered is the so-called irregular ripening and shedding. Here one sees a mixture of cystic hyperplasia and endometrium of the secretory type. This is probably to be interpreted as evidence of gradual ovarian failure, with failure first of the corpus luteum. In my experience this type of endometrium has occurred mainly in patients near the menopause who sought treatment for vaginal bleeding.

I had the opportunity this spring of seeing a Brenner's tumor not larger than the end of the small finger which was associated with cystic hyperplasia of the endometrium, but the ovaries were full of small follicular cysts. Of course, the association of Brenner's tumor and hyperplasia of the endometrium is to be regarded as coincidental as the tumor is known to be physiologically inert.

In discussing masculinizing tumors, Dr. Kriz did not refer to the testicular adenoma which is physiologically active only in about one-third of the cases. It is a small solid, yellow nodule occurring in the testicular portion of the ovary and is of no clinical importance unless it masculinizes the patient. The two tumors of this type that we have studied were found accidentally in the routine examinations of adnexa removed for other pathology and were without physiologic effect.

Dr. P. Graffagnino (New Orleans): I would like to call attention to the most common complaint of the pathologist in connection with the handling of specimens of endometrial tissue, the failure of the operating room assistants to record on the specimen label the necessary information regarding the patient's last menstrual period. Every normal woman has a definite menstrual cycle which can be accurately determined by the pathologist when endometrial tissue is examined, if the first day of her last menstruation is given. The ovaries are primarily actuated by the pituitary gland and ovarian activity is unmistakably mirrored in the endometrium. This pattern is quite constant in the normal woman and the pathologist can determine whether the endometrial cycle is normal or not, providing the menstrual date is designated.

Dr. J. R. Kriz (In conclusion): It seems to me that in the histologic examination of the endometrium we have data which can be of real value in interpreting many of the ovarian dysfunctions. Recently Wollner, from his studies of biopsies from cervical and uterine mucosa, has shown that the histologic effects of the ovarian hormones can be demonstrated as clearly in the mucosa of the

uterine cervix as in the endometrium. He believes the cervical biopsy method offers distinct advantages over the endometrial biopsy procedures.

---

## FRACTURES OF THE UPPER END OF THE HUMERUS TREATED BY EARLY RELAXED MOTION AND MASSAGE\*

RUFUS H. ALLDREDGE, M. D.†

AND

MARVIN P. KNIGHT, M. D.†

NEW ORLEANS

Fracture of the upper end of the humerus represents a common type of injury in old people. It has been customary in the past to treat these injuries by immobilization of one type or another. One of the commonest forms of fixation is the use of the body spica with the shoulder in abduction. Some patients have been treated by traction splints of one type or another. Due to the fact that these people are elderly and most of them are overweight, any type of appliance is difficult to use with any degree of success.

There are objections to the use of immobilization in the treatment of fractures of the upper end of the humerus in old people, in addition to the inconvenience and discomfort inherent therein. Stiffness of the joints, not only in the shoulder but in the wrist, hand, and fingers, has been a not uncommon aftermath of immobilization. For these and other reasons we decided to use a method of treatment in these patients on the Tulane orthopedic service at Charity Hospital which is different from the conventional ones.

The purpose of this presentation is to present briefly the method of treatment used and to show x-rays and results in 14 patients treated by this method.

---

\*Read before The Orleans Parish Medical Society, October 9, 1939.

†From the Department of Surgery, Division of Orthopedics, Tulane University Medical School and the Tulane Orthopedic Service of Charity Hospital, New Orleans.

PHYSIOLOGIC PRINCIPLES UPON WHICH  
TREATMENT IS BASED

The principle of treatment of all fractures by at least a preliminary period of immobilization is widespread and in most instances is based on sound principles. It is generally conceded, however, that the period of immobilization tends to bring about neglect of the soft tissues, resulting in stiffness, after the period of immobilization has ended. The fact that soft tissues undergo even more rapid changes than the bones subsequent to immobilization, is frequently overlooked. Muscle atrophy and fibrosis of muscle with contraction of the joint capsule and ligaments, takes place very rapidly following these fractures, especially when complete immobilization is carried out. Although muscle atrophy is not associated with an actual reduction in the number of cells but is caused by diminution in the size of the cells, it is often difficult to restore the muscle to its normal size and to its normal contractility and elasticity. When an extremity is immobilized, one or the other of the opposing groups of muscles shortens and the opponent is weakened. These changes in the soft tissues prolong disability even after the fracture has united and in some cases, result in permanent loss of function.

One of the frequent objections offered to early motion in the treatment of fractures is excessive bone formation, especially near joints where motion may be interfered with. Theoretically this may be true, but experience has not borne out this objection. In no instance of a fracture treated by early motion and massage has excessive callus formation been noted in this series.

It should be remembered that greater care must be exercised in the treatment of any fracture, dislocation, injury, or disease about the shoulder joint than in any other joint in the body. This is because of the peculiar anatomic make-up of the shoulder girdle. It is well known that the shoulder has a marked tendency to lose abduction and rotation following injury.

The objective in the treatment of these patients then is the early restoration of function. In order to restore function, early

motion and massage are carried out so that immobilization may be dispensed with and the atrophy and changes taking place subsequent to disuse are prevented. Although it is well known that complete immobilization is desirable in order to obtain bony union in fractures in certain regions, this is not the case in fractures in certain other regions. Fractures in the upper end of the humerus seem to be an exception to the rule. Non-union in this region is almost unheard of, whether there is impaction or not.

ADVANTAGES AND DISADVANTAGES OF RELAXED  
MOTION AND MASSAGE

It has been pointed out that these fractures frequently occur in old, obese people. It is needless to indicate the advantage of any method whereby plaster is not used. No splint of any type is necessary. Since the patient is elderly it is desirable to keep him up and active, as recumbency may produce a long train of complications. Hospitalization is not necessary when relaxed motion with massage is carried out. The patient may be completely ambulatory from the time of the injury and for this reason, this method of treatment is the one of choice from an economic standpoint. After a few periods of instruction, the patient may carry on his own treatment largely at home. Pain disappears after a few days and all soreness disappears by the end of two or three weeks. At this time active motion of the arm may be started and the bandage may be discontinued.

The chief disadvantage to the employment of this method of treatment is that a certain amount of cooperation and intelligence are essential on the part of the patient. Treatment by this method requires most careful observation and direction on the part of the physician in the early days of the treatment. These disadvantages are greatly outweighed by the advantages.

## TECHNIC OF THE METHOD

The description of the method as given by Lindsay and Brown<sup>1</sup> has been freely drawn upon and no improvements can be offered at this time. Their technic has been fol-

<sup>1</sup>Lindsay, M. K., and Brown, C. M.: In *Principles and Practice of Physical Therapy*, Ed. by Mock, Pemberton and Coulter, vol. III. Hagerstown, Md., W. F. Prior and Co., 1937.



lowed in detail. The patient's confidence and willingness to cooperate are essential in the use of this method of treatment. The importance of obtaining complete relaxation in the muscles before motion is attempted cannot be over-emphasized. This may be difficult at first, especially in young children and in elderly patients.

The patient is placed supine and superficial heat is applied for about 10 minutes. This is followed by light stroking massage beginning first about the shoulder girdle and shoulder proximal to the site of the fracture. Following massage a pad is placed in the axilla, the arm bound lightly to the side and the forearm placed in a sling. The patient is allowed to become ambulatory immediately. This is repeated daily for the next three days without removing the dressing. This period of treatment simply permits the patient to recover from shock and from the immediate pain suffered from the injury. If gross displacement is present, such as complete separation of the fragments with overlapping, manual reduction under anesthesia, of course, should be carried out. After reduction of the fracture, massage and relaxed motion are carried on in the usual way.

After the third day the heat and massage are followed by relaxed motion. At this time, after heat and massage have been applied, the patient is allowed to stand up. Great care should be exercised in the changing of the position so that the patient will not experience any discomfort whatsoever.

Relaxed circumduction of the shoulder is accomplished by having the patient bend forward while he is standing with the knees straight and with the hand of the normal arm resting on the table for support. With the patient bending over in this manner, the affected arm simply hangs down with the elbow extended. It should be remembered that the type of motion obtained at this time is essentially that caused by the action of gravity in the relaxed extremity. The patient's body is grasped slightly above the hips by the hands of the physician and is moved in such a way as to cause the arm to swing in circumduction without any muscular effort on the part of the patient. The

treatments are repeated daily. When the sensitiveness and tenderness have disappeared, the patient may begin active motion and by the end of three weeks the usual shoulder exercises may follow. The sling and bandage may be discontinued after swelling and tenderness have disappeared.

#### CASE REPORTS

In considering the following cases it should be kept in mind that these are the first of a series of patients treated by this method. The patients are nearly all old people who were seen at Charity Hospital. Due to the age and status of the patients, cooperation has not been all that could be desired. Many of them were admitted to the hospital because they lived out of town and it would have been impossible to follow them otherwise. At this time, September 29, 1939, some of these cases represent end results, while others are still under treatment. It should be noted that various types of fractures of the upper end of the humerus have been treated by this method. Fractures of the greater tuberosity heretofore usually treated in abduction and external rotation in either a brace or plaster have responded favorably to this method of treatment.

#### CASE NO. 1

Mrs. G. W., a white female, aged 85, was injured on August 19, 1939. X-ray findings: Fracture of the neck of the humerus with marked displacement.

Treatment was started on August 19, 1939, in the out-patient department, by relaxed motion and massage of the shoulder daily for three weeks. Following this, she came in every other day for two and a half weeks. She is a recent case at this time and is still getting treatment every other day which consists of massage and relaxed motion. Cooperation has been poor. Despite this, progress has been good. It is too early to determine end results.

#### CASE NO. 2

Mrs. M. S., a white female, aged 59, was injured on March 31, 1939, and treatment was started the following day. X-ray findings: Complete fracture of the surgical neck of the humerus with medial angulation and moderate displacement.

Treatment: She was admitted to the hospital on March 31, 1939. The arm was banded to the side for three days, after which daily massage and relaxed motion were carried out while in the hospital for 10 days. She was discharged April

11, 1939. Following this she returned to the out-patient clinic daily for one month. She then received treatment three times weekly for two months. Following this, she came in for treatment once a week for six weeks. Good results were obtained. X-ray on September 13, 1939, five and one-half months later, showed bony union with slight abduction of the upper fragment but good alignment.

## CASE NO. 3

Mrs. M. N., a white female, aged 55, received an injury on May 30, 1939. X-ray findings: Impacted fracture of the neck of the humerus with external rotation of the head of the humerus. There is moderate displacement.

Treatment: She was admitted to the hospital on May 30, 1939. The arm was bandaged to the side with an axillary pad and after three days, treatment was begun on June 3, 1939, with massage and relaxed motion. She was discharged on June 6, 1939, after one week in the hospital. She returned to the out-patient clinic where she received daily treatments for the next three weeks. She then received treatment three times a week for one month. Progress has been satisfactory; good result. X-ray on September 13, 1939, three and one-half months after injury, showed solid union with good general alignment of the humerus but some adduction of the upper fragment.

## CASE NO. 4

Mrs. J. L., a white female, aged 53, was injured on April 16, 1939. X-ray findings: Fracture of the greater tuberosity of the humerus with slight displacement upward.

Treatment: She was admitted to the hospital on date of injury. She received daily treatments for two weeks and was discharged on April 26, 1939. She returned to the out-patient department where she received massage and relaxed motion for two months; good result. X-ray five months after injury, September 13, 1939, showed solid union of fracture in good position.

## CASE NO. 5

Mrs. A. D., a white female, aged 55, received an injury on July 17, 1939. X-ray findings: Fracture of the neck of the humerus with moderate displacement and angulation.

Treatment: She was admitted to the hospital July 17, 1939. On admission an axillary pad and an Ace bandage were applied to the upper extremity. She received massage and relaxed motion daily until July 23, when she was discharged. She returned to the out-patient clinic daily for three weeks where treatment was continued. She then came in every other day for three weeks and three times weekly for two weeks. Following this she came in once a week for three weeks. Cooperation was poor. The result was good. X-ray on September 16, 1939, about two months after injury, showed solid union with good alignment.

## CASE NO. 6

Mr. R. W., a white male, aged 73, was injured on August 7, 1939. X-ray findings: Fracture of the surgical neck of the humerus with slight displacement.

Treatment: He was not admitted to the hospital. In the out-patient department an axillary pad was applied and the arm bandaged to the side with an Ace bandage where it remained for three days. Following this, massage and relaxed motion were started and continued daily for seven days. No motion was carried out for the following three days. He came irregularly for treatment but despite this fact, progress to date has been satisfactory. It is too early for end result rating. X-ray about one month after injury, on September 9, 1939, showed good alignment of fragments.

## CASE NO. 7

Mr. B. R., a white male, aged 84, was injured on June 25, 1939. X-ray findings: Oblique comminuted fracture of the surgical neck of the humerus.

Treatment: He was not admitted to the hospital. He was seen in the clinic where an axillary pad and an Ace bandage were applied with the arm at the side for three days. Following this, massage and relaxed motion were started. He received treatment daily for one month, following which he came in every other day for two weeks, and twice weekly for two more weeks. He is still getting treatment at this time, September 28, 1939. Progress to date has been good and function is good; good result. X-ray on September 7, 1939, two and a half months after injury, showed solid union with good alignment of the humerus.

## CASE NO. 8

M. R., a colored female, aged 69, received an injury on May 7, 1939. X-ray findings: Complete, slightly oblique, slightly comminuted fracture of the surgical neck of the humerus with slight displacement.

Treatment: Admitted to the hospital May 7, 1939. On admission to the hospital an axillary pad was applied and the arm bandaged to the side with an Ace bandage. After five or six days, massage and relaxed motion were started. She received daily treatments until May 28, 1939, when she was discharged. She cooperated poorly while in the hospital but despite this, progressed fairly well. She was lost sight of and has not been seen since she was discharged. The last x-ray was taken on May 29, 1939, twenty-five days after the injury, and showed good alignment with callus formation. Position was improved.

## CASE NO. 9

Mrs. C. E., a white female, aged 38, was injured on March 8, 1939. X-ray findings: Oblique fracture of the surgical neck of the humerus with minimal displacement.

Treatment: On admittance to the hospital on March 8, 1939, lateral traction was applied in bed.

Massage and relaxed motion were started on March 16, 1939. She was discharged on March 17, 1939, and returned to the out-patient clinic daily for two weeks where treatment was given. She then returned twice daily for two weeks after which no further treatments were given. Progress was good and despite poor cooperation at first, the result was excellent. She later received a compound fracture of the tibia and fibula for which she was readmitted and at which time the end result on the shoulder was obtained. This patient was the first one treated by this method, with excellent results. X-ray on May 10, about seven weeks after injury, showed solid union with good alignment.

## CASE NO. 10

Mrs. A. F., a white female, aged 39, sustained an injury April 9, 1939. X-ray findings: Fracture of the greater tuberosity of the humerus with minimal displacement.

Treatment: She was admitted to the hospital on date of injury. An axillary pad was applied and by means of an Ace bandage, the arm was bound to the side. The forearm was placed in a sling. On the third day massage and relaxed motion were started. She received treatments for one week while in the hospital. She was discharged April 16, 1939. She returned to the out-patient department where she received treatment every other day for one week. She then missed 10 days, following which she received treatment every other day for one week. She has not returned since this time. The result was excellent. The last x-ray, taken one month after injury, on May 10, 1939, showed good position of the fragments.

## CASE NO. 11

Mr. G. S., a white male, aged 50, was injured on March 12, 1939. X-ray findings: Comminuted fracture through the anatomic neck of the humerus with minimal displacement.

Treatment: He was not admitted to the hospital. He was seen in the out-patient clinic on the day following injury, at which time an axillary pad was placed and the arm bound to the side by means of an Ace bandage. On the third day, massage and relaxed motion were started. He received treatment every day for one month, after which he came in every other day for six weeks. He was then treated twice weekly for two weeks, after which treatment was discontinued. The result was excellent. X-ray taken September 13, 1939, eight months after injury, showed a normal appearance of the humerus with no evidence of a previous fracture.

## CASE NO. 12

C. R., a colored female, aged 50, received an injury on September 6, 1939. X-ray findings: Fracture through the surgical neck of the humerus with slight displacement.

Treatment: The patient was admitted to the hospital on September 6, 1939. An axillary pad was applied and the arm bound to the side by

means of an Ace bandage. She has received daily treatments and is still under treatment in the hospital at the time of this writing. Progress to date has been satisfactory. It is too early for end result rating.

## CASE NO. 13

J. D., a colored male, aged 67, sustained an injury on May 15, 1939. X-ray findings: Comminuted fracture of the upper end of the humerus. (Note: This was a compound fracture due to a gun shot wound. It is the only compound fracture in this series treated by this method.)

Treatment: He was admitted to the hospital on date of injury, to the Surgical Service, where he was temporarily splinted and dressings applied. He was then transferred to the Orthopedic Service four days later, where massage and relaxed motion were started on the same date. He received daily treatments until he was discharged on June 11, 1939. Cooperation was good; progress was excellent. He was readmitted to the hospital about two months later, at which time had full motion in the shoulder joint without pain. The result was excellent. The last x-ray available is dated May 30, 1939, two weeks after injury, and showed normal anatomic position of fragments with callus formation.

## CASE NO. 14

Mrs. F. L., a white female, aged 66, was injured on September 6, 1939. X-ray findings: Fracture of upper end of humerus through the surgical neck.

Treatment: Massage and early relaxed motion. This is a recent case and the patient is still under treatment. It is too early to determine results.

## SUMMARY

A report has been given on the use of massage and early relaxed motion in the treatment of fourteen cases of fracture of the upper end of the humerus. This series of cases is not large enough to furnish a basis for final conclusions, but the results thus far on the whole are favorable enough to justify the continued use of the method in preference to any other heretofore employed.\*

## DISCUSSION

Dr. Marvin P. Knight (New Orleans): Treatment of fractures which occur in the upper third of the humerus involves more than the fracture itself; as stated non-union in this area is almost unheard of. The largest majority of these fractures occur in elderly people, and the problem of

\*The writers are indebted to Dr. Guy A. Caldwell, Chief of the Tulane Orthopedic Service, for helpful suggestions and for permitting the use of the method on the service. One of the authors (R. H. A.) is indebted to Dr. J. R. Cobb, of New York City, from whom he learned the value of this method.

maintaining a usable painless shoulder, elbow, and wrist, becomes more of a problem than the fracture. This series of cases treated by massage and relaxed active motion prevents not only the above complications, but the more serious terminal complications following bed rest in elderly people. With the exception of one patient, the pain and swelling had disappeared in the shoulder, elbow, and wrist, the first week of treatment.

The comfort of each patient treated by massage, relaxed active motion was realized in every case following from one to three treatments. Each of these patients was very optimistic, when told the type of treatment he was to receive. Some insisted the arm was broken. Each individual had a different attitude following the first week of treatment.

As stated by Dr. Alldredge, the success of the above treatment depends largely upon the cooperation of the patient. Special care, time, and patience are very valuable during the first week of treatment. The success of the treatment can usually be determined in that first week. If full cooperation on the part of the patient is received the outcome can easily be explained to the patient, that he, or she, will have a good arm, a painless, useful arm as quickly as the fracture heals.

It is sometime rather difficult for a patient, 60 to 85 years of age, to understand just what is expected of him. We found it rather profitable to encourage a relative to attend the first treatments, and assist the individual in the following treatments. The lack of burdening the patient by the use of plaster cast and apparatus encourages the patient to remain ambulatory. Being ambulatory is essential to this type of treatment, it is a part of the treatment. The patients of this series who were admitted were not allowed to use the bed during the day. Therefore the patient escapes the possibility of bed rest complications.

None of these patients received reduction of the fracture under anesthesia, following the injury. Had this been carried out the anatomic positions of each could have been improved, but to obtain more range of motion is doubtful; however, it is advised where marked displacement is present.

This treatment, in my estimation, is an improvement toward the treatment of fractures which occur in this region, because the percentage of complications is markedly reduced, the treatment, itself, is comparatively simple, the expense to the

patient is less, and the period of convalescence is markedly reduced. However, the physician must be patient, give a little more of his time to the case, and receive the full cooperation of the patient.

Dr. Guy A. Caldwell (New Orleans): I think these results speak for themselves and any of us who have watched treatment of shoulder fractures develop can appreciate the difference as compared to results obtained when we used plaster and aluminum abduction splints. It is most difficult to care for a fat, elderly woman with her arm on an abduction splint. It is next to impossible and the results are not as good as these and the length of treatment much longer.

Dr. Alldredge and Dr. Knight have presented this method of treatment very well with the exception of explaining the trick of the thing to you. The trick is that when the patient bends forward with the arm hanging straight down the shoulder has moved through an arc of 90° in forward flexion; as the arm hangs its weight relaxes the muscles at the shoulder, the joint surfaces are thereby separated and it becomes possible to carry out circumduction by trunk movements transmitted to the dangling arm without producing pain or muscular spasm. Constant traction is being maintained on the fragments while the movements are carried out and no displacement can occur.

The results obtained in the cases shown prove beyond question that the method is useful and should be continued.

Dr. Rufus H. Alldredge (In conclusion): I should like to say that the massage was given by the physiotherapy department of Charity Hospital. Dr. Knight has cooperated to the extent of being present whenever one of these patients came back, supervised the massage given by the physiotherapy department and directed active motion. There is no reason, however, why this treatment can not be carried out in the office by the physician. It should not be beneath the dignity of anyone to give the type of massage used in this connection.

In order to obtain further abduction at the shoulder or more elevation as mentioned, I think it best to have the patient lie down and go through active motions. If the patient can complete every motion simply lying on his back, well and good; if not, then a pulley is attached to the head of the bed with a light weight and the patient is advised to lie down and pull on the pulley.

# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.,  
Vice-chairman

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*  
Willard R. Wirth, M. D.....*Editor*  
Edwin L. Zander, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*  
1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

that the doctor is to be away at a given time his clientele is less likely to make demands upon him and is more likely to be thoughtful in calling him at this time. Furthermore, if a person develops an acute sickness, if the physician has told his patients he will be away at this time, they will have less objection to his leaving them in the hands of some other doctor.

It would be well to stress the point with the patients that the State Society meeting is not merely a pleasant relaxation in the busy life of a physician, it is definitely educational. When a man returns from the State meeting he will find that he has been medically refreshed, he has learned about new methods of procedure, he has acquainted himself with the modern ideas concerning diagnosis and treatment and he has advanced himself measurably in his fund of knowledge. Furthermore, by taking part in the discussions he can himself aid in increasing the knowledge of others through his experience and his observations. The programs of the State meetings of the last few years have been invariably excellent. No one, no matter how large his practice or how broad his information, can fail to get something new, a fresh point of view, an original angle, or a novel approach to some of the problems that he meets in every day practice.

There is a great deal of discussion at the present time concerning the value of refresher courses, symposia, the presentation of newer things in medicine to the older practitioners of medicine. Our own State Society has been interested in this problem. When all is said and done, the State Medical Society meeting represents an excellent educational program for the physician. So valuable has this educational feature of the State Society meeting been considered that, in one state at least, a certificate is given to those men who attend five consecutive meetings. This is merely a recognition that they are interested in keeping abreast of the times and that this certificate hung in the office will show the doctor's clientele that he is a man who is on his toes, wide awake and interested in current medical advances.

## THE ANNUAL MEETING OF THE STATE MEDICAL SOCIETY

It is not too soon to begin to think about the approaching meeting of the State Medical Society which will be held in New Orleans this year the latter part of April. If a man is anxious to go to the State Society meeting he should begin to make his plans early. As pointed out before, if it is known

## STATE MEDICINE

At the Annual Congress on Medical Education and Licensure where there were collected representative medical men from all over the country, including educators and members of State Boards of Medical Licensure, it was the general consensus that for the time being the Wagner Act had been relegated to the background. It was felt that the President of the United States realized the tremendous difficulties which would be encountered in attempting to make effective the original Wagner Act. Likewise it was realized that this would require tremendous expenditure of money which would be very hard to justify in view of the almost united opposition of the medical profession, which has taken definitely the stand that the Wagner Act would be detrimental to medical service and medical care. As a matter of fact there are so many poorly conceived socialistic ideas in this bill it is very doubtful indeed if it would be able to pass Congress.

The American medical profession, under the leadership of its organized representation, the American Medical Association, has pointed out many of the wrongs that this Act would perpetrate on the medical profession. Not only has the American Medical Association been active in combatting this piece of ill-advised legislation but also state medical societies and their subsidiaries, parish and county organizations. In place of this bill Mr. Wagner has introduced, probably prompted by the President, a bill which provides for the promotion of the national health and welfare through the appropriation of funds for the construction of hospitals. A copy of this bill can be obtained from the American Medical Association office, by any physician interested in its details. Suffice it here to say that ten million dollars are to be appropriated for carrying out the purpose of the Act. The hospitals will be established only where there is need for them. Assurance must be given to the Surgeon General of the United States Public Health Service that not only the need exists but the hospitals will be kept in

repair and will be financed by the local community. To carry out the details of the Act there will be established a National Advisory Hospital Council which will consist of the Surgeon General and six appointed members selected from the leading medical or scientific authorities interested in hospital and public health medical service. Through this Advisory Council it is obvious that the physician will be represented and will have some say in the carrying out of the Act.

In many ways the Act seems like an excellent one. The president-elect of the American Medical Association spoke in behalf of it at the Chicago meeting and other medical economists also spoke in its favor. It looks as if this Act would increase medical service to the indigent and would take care of the poorer sections of the country where hospital facilities are not available to the poor. However, as it has been stressed before, there are extremely few communities where this is true and these are often very sparsely settled and the inhabitants are long distances from each other. Another objection that might be pointed out is that while the bill calls for the appropriation of only ten million dollars, a tremendous reduction as contrasted with the other Wagner bill, nevertheless it is quite possible that when it is presented to Congress each and every Congressman will feel that he must have one of these hospitals in his district. Even though it is planned to spend not more than \$150,000 on one hospital, each Congressman will want this small amount of gravy for his constituents and it might possibly be that there will be a tremendous increase in the amount of money appropriated. Inasmuch as this is an election year, when economy is the word, this contingency may be obviated for a year at least. The only other criticism that seems pertinent is whether or not in the sparsely inhabited sections of the country and in the poverty stricken areas there will be enough physicians and physicians who are sufficiently well trained to render adequate service. However, Section IX provides for monies to be expended by the Public Health Serv-

ice for the training of personnel. There is a remote possibility that this personnel may become government employees and the care of the sick in the hospitals be taken away from the hands of the local men.

---

### SULFAPYRIDINE AND PNEUMONIA

The very general use of sulfapyridine in the treatment of pneumonia has resulted in an influx of papers reporting on the very satisfactory results that have been obtained with this drug. These papers are appearing in medical journals of all types but, in spite of that fact, it does not seem inappropriate to point out some of the results that have been obtained, inasmuch as, probably due to the extremely cold weather of this winter, there has been a marked increase in the number of patients with pneumonia who have been, for the most part, seriously ill. One of the most complete early reports was that of Pepper et al.<sup>1</sup> who recounted the result of treatment in 400 patients to whom sulfapyridine was administered. These cases were all typed, 197 of them being due to the first three types of pneumonia. The mortality was 5.8 per cent in 104 cases of type I pneumonia, 6.7 per cent in 30 cases of type II pneumonia and 16.4 per cent in 67 instances of type III pneumonia. The mortality for the group as a whole was 7 per cent. These patients represented individuals who were seen during the early winter of 1938-39. The suggestion has been made that during this particular winter the pneumococcus was not particularly virulent. However, the results in the present winter have been, for the most part, equally satisfactory.

Abernethy et al.<sup>2</sup> report on 135 cases of pneumococcus pneumonia treated with sulfapyridine and sodium sulfapyridine with a mortality rate of 11.1 per cent. There were no deaths in the type I cases. These authors point out that in severely ill patients and in patients in whom apparently the oral sulfapyridine does not have any satisfactory effect, the drug may be given intravenously in the form of the sodium salt. This may be given intra-

venously in doses of 3.8 grams, the injections being given as frequently as every twelve hours if the necessity arises.

Another group of observers, Thompson et al.,<sup>3</sup> had 142 patients who had sulfapyridine treatment of their pneumonia. The mortality rate was 8.4 per cent. In the group of individuals between the ages of two and forty, there were no deaths. In so far as typing is concerned, of a considerable series of type III the mortality rate was 16 per cent. The incidence of complications, incidentally, was slight.

The administration of sulfapyridine varies somewhat with different observers. Under any circumstances the important therapeutic measure is to saturate the patient with sulfapyridine immediately, promptly and at once. Some recommend giving 4 grams (60 grains) of the drug in one dose, others to spread this over a period of four hours and then subsequently give a gram every four hours until the temperature has remained normal for at least two days. Succeeding the preliminary dose it is generally agreed that the one gram (15 grains) dose should be continued every four hours. The dosage in children recommended, namely 0.1 gram per kilo of body weight, is probably too small. Children can take larger doses than this without toxic manifestations.

Still another paper, from the Thorndike Medical Laboratory by Finland et al.,<sup>4</sup> reports on the use of sodium sulfapyridine intravenously. These authors merely accentuate what has been said, namely that the sodium salt given parenterally may be life saving in selective cases. Incidentally, these authors tried out the use of highly concentrated solution of sulfapyridine in 50 per cent glucose. While it was found to be non-toxic it was mostly inert.

The results from the use of sulfapyridine in pneumonia have been spectacular. If patients with pneumonia are promptly medicated with the drug the temperature returns to normal sometimes within twenty-four hours and remains normal. Undoubtedly the use of sulfapyridine in pneumonia is one of the greatest advancements in therapeutics that has been accomplished in

recent years. A disease which has a death rate year in and year out of between 20 and 25 per cent has fallen to a rate of one-third of the previous one. Aside from this, the complications are materially reduced and the length of sickness is markedly diminished.

1. Pepper, D. S., Flippin, H. F., Schwartz, L., and Lockwood, J. S.: The results of sulfapyridine therapy in 400

cases of typed pneumococcal pneumonia, *Am. J. Med. Sci.*, 198:22, 1939.

2. Abernethy, T. J., Dowling, H. F., and Hartman, C. R.: The treatment of lobar pneumonia with sulfapyridine and sodium sulfapyridine, with observations upon effective blood levels, *Ann. Int. Med.*, 13:1121, 1940.

3. Thompson, L. D., Edwards, J. C., and Hoagland, C. L.: Experiences in the treatment of lobar pneumonia, *Ann. Int. Med.*, 13:1138, 1940.

4. Finland, M., Lowell, F. C., Spring, W. C. Jr., and Taylor, F. H. L.: Parenteral sulfapyridine: The intravenous use of sodium sulfapyridine and a report of clinical and laboratory observations on the use of a glucose-sulfapyridine solution, *Ann. Int. Med.*, 13:1105, 1940.

0

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### TOURO INFIRMARY

New Orleans

A regular monthly meeting of the Medical Staff was held on Wednesday, February 14 at 8 p. m. The program consisted of a clinicopathologic conference by Dr. John A. Lanford; "Report of Two Unusual Abdominal Neoplasms in Infants under Two Years of Age" by Dr. Charles J. Bloom; "Ectopic Pregnancies Occurring in Touro Infirmary 1924-1936" by Dr. Perry Thomas; "Postpartal Hypertension" by Drs. Sam Nadler and Harry Meyer.

### HUTCHINSON MEMORIAL CLINIC

OF THE

SCHOOL OF MEDICINE

TULANE UNIVERSITY OF LOUISIANA

New Orleans

Scientific Session conducted by the Department of Preventive Medicine, Dr. W. H. Perkins presiding.

*Congenital Webbed Neck with Infantilism* (Dr. Leonard C. Scott): Congenital attachment of fingers, toes, webbing of axilla or the popliteal space are by no means rare developmental anomalies. Syndactylism together with polydactylism, hypogonadism, obesity, amaurosis, and mental retardation are characteristics of the Lawrence-Moon-Biedl syndrome and when occurring together must be regarded as very infrequent. Likewise webbing of the neck is also unusual and constitutes a feature of a true syndrome only when combined with other anomalies often enough to be apparently related.

Numerous accounts of webbed neck are mentioned in the literature. The earliest appears to have been the recording of a patient in a clinic in Dorpat. The description by Kobylinski in 1883 mentions the fact that this individual was born with extra skin on either side of the neck resembling wings. The case was that of an adult male who suffered no inconvenience and could move his head without difficulty or restriction. No mention is made of hypogonadism.

Another instance of webbed neck in a 15-year-old girl is described by Funke in 1902. In this instance there was marked retardation of development of the genitalia. Operative procedures were successful in producing excellent cosmetic results.

The anomalies, similar in appearance but not entirely in structure, described by Klippel and Feil in 1912, Darchter in 1922, Frawley in 1925 and Bauman in 1932, all with few exceptions present defects of the cervical vertebrae. In some of the cases one or more are absent, are fused together or are atrophic. In others there existed a spina bifida together with shortening of the neck, so that the phenomenon of webbing was not an actual excess of skin extending from the occiput and mastoid to the acromion and clavicle. In many of these instances there occurred feeble-mindedness, mirror movements of the arms, torticollis, facial asymmetry, scoliosis with difficult respiration and deglutition.

In 1938 Turner reviewed the literature and described seven cases, all of which differ markedly from the earlier ones with the single exception of Funke's patient and perhaps one of Frawley's. They were either adolescent or adult females varying in age between 15 and 23 years. All presented the same sequence of developmental anomalies: Webbed neck, infantilism and in addition cubitus valgus to a considerable degree. Inasmuch as many apparently normal women exhibit this anatomic characteristic it can hardly be regarded as a developmental defect unless unduly exaggerated. Apparently none suffered to any extent from mental retardation, but all were below the normal height and the bone and real ages were not congruent. Turner in an addendum mentions three additional cases having been observed since writing the article, so obviously this syndrome is not rare, at least not in Oklahoma.

The patient who came under our observation is identical in most respects with those described by Funke and Turner, with the exception of the cubitus valgus, which was not noted at the time and the patient has so far refused to return for examination.



## CASE REPORTS

I. D., a female 18 years old, came to the clinic in 1938 complaining of defective physical development. She is of mixed racial stock, Italian, French and Spanish. Her mother died at the age of 24 as the result of a miscarriage. Her father is still living but does not contribute to the support of the family and is a heavy drinker. Two other children, a boy and a girl respectively 15 and 13 years of age, are living and well and show no defects analogous to those of the patient.

She seems to have presented an unusual appearance at birth but was of normal weight and developed slowly, walking and talking at about two years. Apparently the webbing of the neck with the apparent shortness did not excite much attention but it was noticed that at about the tenth year she failed to grow or develop further. Her intelligence is good. She learned readily and attended high school for two years, walking twenty-two blocks to and from school.

By nature she is placid and cheerful, helpful at home and cooperative in the clinic. In no way irritable, she does not resent teasing with outbursts of temper, but calmly accepts the situation as she finds it.

**Physical Examination:** The patient presents the appearance of a dwarfed individual with a tendency to obesity. The neck appears to be shorter than normal but the head movements are seemingly unrestricted. A band of skin extends on either side from the base of the skull near the mastoid to the acromion process, being continuous with that overlying the scapula and the acromion end of the clavicle. The appearance is that of increased width of the trapezius muscle but palpation shows the web to be two skin layers with connective or fatty tissue between them.

The abdomen is obese, the genitalia infantile, and there has never been any menstruation. There is but a scant growth of hair on the pubis, and none in the axilla. Breasts are flat without fat or glandular tissue. No uterus could be palpated, but the vagina allows the introduction of the index finger.

The patient has a height of only  $51\frac{1}{4}$  inches and a weight of 89 pounds. Other measurements are: Span  $49\frac{1}{2}$  inches, pubis to floor  $24\frac{3}{4}$  inches, pubis to vertex  $26\frac{1}{2}$  inches, a difference of  $1\frac{3}{4}$  inches. The two should be nearly equal and together approximate the height. The head was 20 inches in circumference, the chest  $33\frac{1}{2}$  inches and the abdomen 34 inches. The hands are short and spatulate, the fingers being almost equal in length. Aside from a multitude of pigmented moles and a slight bulbar protrusion which is apparently not of thyroid origin, the further examination is irrelevant.

**Laboratory Findings:** The urine showed no abnormalities. The hemoglobin was 75 per cent, the red blood cells 5,045,000; the fasting blood sugar

was 80 mg. per cent; cholesterol in two examinations 190 and 198 mg. per cent; calcium 13.6 and 12.4 mg. per cent; and phosphate 3.1 and 3.2 mg. per cent. The Wassermann and precipitin reactions were both negative; the stool negative for intestinal parasites; the basal metabolic rate -1 per cent. An electrocardiogram showed only sinus tachycardia.

X-ray findings indicated delayed calcification of the epiphyses of the long bones and the metacarpals. The bone age is estimated to be retarded three or four years. The sella was found to be normal in size but with some elongation of the posterior clinoid process. The heart, aorta and lungs were found to be normal.

**Therapy:** Turner is the only one to achieve any result with hormonal therapy, Funke's patient being subjected to surgery. Furthermore, only one of Turner's patients was induced to grow and to menstruate.

In our patient no benefit was derived from the injection of 192,000 units of theelin administered between June 22 and November 12, 1938, and 1,200 units of antuitrin S between the latter date and January, 1939. It should be remarked that while no apparent results were achieved, the patient reported feeling subjectively much improved in stamina, endurance and well-being.

It is possible that this patient could be helped by a longer series of injections such as Turner employed. He used antuitrin G and theelin as well as progynon-B, the first two being supplied by Parke-Davis and Company, and the latter by the Schering Corporation. In addition he employed an anterior pituitary sex hormone preparation of Ayerst, McKenna and Harrison.

**Conclusions:** This patient undoubtedly is one with the growth anomaly complex described by Funke, and more in detail by Turner as a syndrome of webbed neck, infantilism and possibly cubitus valgus, though the latter deformity was not specifically noted.

The principal complaint of course is the hypogonadism which is probably due to functional deficiency of the pituitary, though it might be questioned whether the suprarenals do not play some role. This assumption is based on the masculine configuration of the body, without clitoris enlargement, and the possible relationship between multiple pigmented moles and adrenals.

Therapy with theelin gave no indication of stimulating gonad function, and menstruation was not established. It does not follow, however, that more energetic and consistent treatment would not be effective.

*Urine Examination of the Apparently Healthy (Dr. W. H. Perkins):* The examination of the apparently healthy places a high degree of dependency on the value and efficiency of accessory clinical tests. Since it is the aim of such examinations to reveal the earliest evidences of pathologic-physiologic changes even before the disease state

becomes clinically manifest, it is evident that tests to determine these changes should be able to present a satisfactory degree of reliability.

Healthy persons presenting themselves for examination place a responsibility on the examiner that must be met by a judgment on their present state that will not carry a false sense of security for the examined or a serious oversight on the part of the examiner. In this respect a health examination possesses all the characteristics of a physical examination in the presence of overt disease but in addition bears the necessity to reveal whenever possible the earliest departures from the normal.

This is a difficult task. The complete natural history of many of our common disabling and eventually fatal diseases is so little known that we are still largely ignorant of their beginnings. While the pathologist sees early changes in persons accidentally dying from other causes, the clinician sees them only after they are far advanced pathologically if not clinically. Diseases affecting the urinary secretory and excretory mechanisms are notoriously of this type. It can be said with almost certainty that none of us knows what the beginnings of clinical diseases of the kidney look like.

It is not infrequent that the health examiner has a patient who presents a blood pressure that remains constantly around 145/90 and who shows an occasional trace of albumin in the urine. He is immediately challenged to decide whether he is dealing with an early nephrosclerotic.

The intent of this discussion is not to give any answer to this serious problem but to re-examine one of the oldest of all clinical tests, namely, examination of the urine.

The time has long passed since physicians depended on the visual and olfactory, if not the gustatory, test for examination of the urine. In its stead there are employed chemical and microscopic examinations and certain functional tests that are alleged to reveal failures of more or less specific functions of the renal mechanisms.

The question therefore arises anew, "How much renal function examination is necessary in the health examination, or for that matter, any casual physical examination?"

The life insurance examiner has behind him an imposing array of experience tables. With these he can predict the probabilities of extension of life of individuals free from pathologic urinary findings. He knows the age of his client and if he finds a single urine specimen free from albumin, sugar and casts, lays odds that he will probably live at least to a given age. The client takes the bet and pays his premiums. If, however, some abnormality is found and a little further examination is done and the abnormality persists, the odds are raised and the examinee pays the increase if he wants protection. Such examinations are scientific in so far as they are based on mathematical probability; they do not apply to each integral member

of the series. Obviously this type of renal examination is unworthy of any consideration in the type of work expected of a health examination.

An alternative to the insurance type of examination is the bio-assay recommended well back in the last century by Gould. In it he recommends that every individual undergo repeated complete analysis of the biologic specimen type. He would have us almost literally take our specimens apart, examining them *in vivo* just as far and completely as our examining methods permit. That was at a time when kidney disease was Bright's disease and before the development of our modern methods of studying renal mechanisms and tests for their efficiency. To resort to this method today would necessitate our well clients being placed in metabolic beds under strictly controlled conditions for at least a week. The number of examinations done would of course depend on the faith of the biologist in his available methods but in any case the client could not afford either time or money to pay for them.

There remains the further alternative of finding a method somewhere between these two, a method that will reveal the greatest amount of physiologic-pathologic change with the least expenditure of effort, time and expense on the part of both examiner and examinee.

The Department of Preventive Medicine has been faced with this problem since the inception of its Health Examination Clinic and we have not been too happy about our results. It is impossible for us to set up elaborate testing methods. Patients come to us as they do to you to find out where they stand in regard to their health, whether it be in the presence of openly manifest disease, or only the desire to know how healthy they are and to seek advice how to stay that way. These patients come to us but a few times and their circumstances prohibit extensive and prolonged examinations. Moreover, we are attempting to teach students how to evaluate health and maintain it in their clients in private practice.

Except under expediency we have abandoned completely the single urine specimen examination. Omitting in this discussion the all important part of the examination which is the history, and the physical examination of the kidneys, ureter and bladder that is systematically and traditionally carried out, we wish to present only the question of the adequate examination of the urine itself. We do not even intend to include the functional tests that are resorted to when conditions or suspicions indicate they should be carried out.

It has been our belief that the minimum that should be known about the urine of an apparently healthy person is the story of his 24 hour output. Since the excretion of urine and its chemical-physical make-up is a variable function, able to adjust itself normally to certain demands, we believe it important to know how this function be-

haves in a given individual through at least one complete normal day.

To do this, we ask the patient to select a day at his or her convenience on which the entire 24 hour output can be saved. For housewives this means almost any normal day. For those who go to work a Sunday or any other day off is usually available. Pre-school children are at home most days and school children can carry it out on Saturdays, Sundays or holidays.

The collection of the output involves saving all of every specimen voided over any 24 hour period. This means that a number of small bottles be made available because each voiding is kept complete and separate from all others. Directions must be explicit in this regard for otherwise they will bring only parts of specimens. Insistence must be made on cleanliness of the bottles particularly if they are soft drink bottles that had contained sugar.

The patients are instructed to tear off a corner of a newspaper, write on it in pencil the time of day the specimen was passed and poke it into the bottle so that it drops into the urine and settles on the bottom. The paper does not disintegrate, the lead does not run and the writing can be read easily through the bottle. This obviates the necessity of sticky labels on the outside that usually come off. All separate specimens are brought to us by the patient or left with us by some one else prior to the next return visit of the patient and as soon after collection as possible.

If directions have been well carried out we then have a mass of pertinent information about the urinary function over 24 hours, summarized as follows:

**Amount:** Measurement of the individual samples gives the 24 hour output. The time marked on each specimen tells whether it was day or night and the total of day specimens and night specimens gives the D/N volume ratio. Amounts of individual specimens may vary also with activity, fluid intake, and relationship to meals; all of which can be known.

**Frequency:** Measured by the number of bottles and their D/N ratios.

**Reaction:** Read individually for each specimen.

**Specific gravity:** The accumulated specimens give a number of specific gravity readings that can be related to each other, volume, meals, day and night activity and rest, and to any abnormalities that may be found otherwise. Fixation and variation in specific gravity readings roughly approximate the more accurate and controlled results of a Mosenthal test.

**Albumin:** Individual testing of specimens may reveal the effects of intermittent albuminuria, orthostatic albuminuria or the persistent findings of an advanced nephritis.

**Sugar:** If sugar tests are positive they can be related to meal times or first morning specimen, as it is customary to elicit in glycosuria.

**Casts and other formed elements:** Examined for in each specimen.

We present here the summarized findings on 47 adults (over 20) who have submitted specimens collected in this way. There have been far more youths and children seen in our clinic but only adults are selected now because they are in the age periods when most people are seen for insurance examination and when the chronic urinary findings are more likely to be present.

Of the 47 presented, 13, or 28 per cent, showed some abnormality in one or more specimens. This does not include interpretations of specific gravity readings or suspected abnormalities of D/N ratios or frequency. They represent only albuminuria, glycosuria, casts or excessive white or red cells (one case only). In no instance was any abnormality present in more than two of the fractional specimens. In ten the blood pressure was 140 systolic or over. No patient gave any history of renal disorder. The average number of specimens brought per patient was 5.6, the greatest number 9, the least 3. Frequency was therefore well exemplified by this number of specimens. No significance could be attached to the variations in specific gravity with the possible exception of one person, aged 20, who brought four specimens of specific gravity 1.032, 1.027, 1.023 and 1.025 and hyalin casts in the 1.027 sample. The only other finding in this case was a marked degree of faulty posture with kyphoscoliosis.

As fragmentary as this series is it appears to bear out our contention that the fractional analysis of all 24 hour urine specimens has a high probability of picking up abnormal findings to a degree significantly higher than the single test. Although single specimens from the mixed 24 hour output have not been examined by us it appears reasonable to believe that the occurrence of abnormal elements in only one or two of the 24 hour specimens might readily be overlooked by sedimentation of the mixture before being brought to us, or by dilution of small amounts in the full 24 hour volume.

Also, it appears that the comparison of samples will reveal significant data on which the appearance of abnormal findings might depend; for example, the findings of sugar after meals or albuminuria in evening specimens.

Whatever the value of urinalysis might be it cannot be considered apart from the history. It is our custom to require histories to be written with sufficient data in regard to meals and habits of eating, occupation and activity, to anticipate correlation of these facts and urinary findings.

In our opinion the collection of single specimens over a period of 24 hours and their examination individually is of more value than a single specimen or a single 24 hour specimen in routine health examination work; that this type of examination will carry a significantly higher probability of revealing inconstant urine abnormalities; and that

it is a satisfactory basis from which to begin more extensive renal function studies as the findings might indicate. The fact that 28 per cent of a series of only 47 apparently healthy adults revealed abnormalities usually considered significant would appear to bear out this conclusion.

*Discrepancies in the Results of Tuberculin Tests and Chest Films of Clinic Patients* (Dr. Adrian Rodriguez): Any one who has attempted the diagnosis of tuberculosis in children has been confronted with the problem of a child with a negative Mantoux, and x-ray showing definite evidence of calcification in lung parenchyma or hilar nodes. In such cases there are certain possibilities: First, errors in technic of performing the Mantoux, or in using inadequate doses of tuberculin; second, calcium deposition in lung parenchyma or hilar nodes not due to tuberculosis; third, misinterpretation of shadows which may not be due to calcium; and fourth, tuberculous lesions which may have been completely healed with a subsequent loss of sensitivity.

Those same possibilities have arisen in children seen in the Departments of Preventive Medicine and Pediatrics, and for discussion tonight I have gathered 30 such cases with negative tuberculins and x-ray reports of calcification.

In both departments the intradermal test is used, old tuberculin 0.1 mg. being used in Pediatrics, and pure protein derivative (second strength) in Preventive Medicine.

The test is performed by one of the senior students, but supervised by a member of the staff; this is also true of the reading which is done in 48 hours. Our solutions are made up and kept fresh according to standard recommendations, although there are several reports in the literature of old tuberculin having been kept out of the ice box for six months without any loss of potency. Likewise, Seideman once obtained more positive results with a 7-12 weeks' old solution of P. P. D. (second strength) than with a so-called fresh dilution.

Our only possible error, therefore, as far as the tuberculin test is concerned, is in the use of a solution of insufficient strength.

Meyers recommends that the second dose of 1 mg. of old tuberculin be given to those reacting negatively to the weaker dilution, as otherwise a 10-20 per cent error may result. Hetherington has reported about 10 per cent negative reactors even to 1 mg. of old tuberculin; however, others have reported a much lower percentage of error. Tatterstall has found that a negative reaction to 0.1 mg. of old tuberculin excludes the presence of tuberculosis with a margin of error of only 2-4 per cent. Paretzky in Los Angeles has found 3.5 per cent negative to 0.1 mg. of old tuberculin whereas only 1.2 per cent negative to higher doses including 10 mg. He states, however, that he is not advocating a wholesale use of high doses of tuberculin for all negative reactors. This should de-

pend on the clinical judgment of the examining physician.

In the cases from the Department of Pediatrics the use of higher doses was considered indicated in but one case. Negative reactions were then obtained to both 0.1 mg. and 1 mg. of old tuberculin.

In the Department of Preventive Medicine the second strength pure protein derivative was used routinely, so that an equivalent of 1 mg. of old tuberculin was used in all cases and larger doses were therefore considered unnecessary.

In a series of 200 autopsies Frimann-Dahl and Waller studied the non-tuberculous lesions which had produced x-ray shadows misinterpreted as parts of a primary complex. They found calcified thrombi or emboli in six cases; small intra-alveolar ossifications in seven cases, and non-tuberculous calcifications and thickened pleura in 48 cases. Anthracotic and silicotic nodules have also been found, and Meyers has seen pieces of lead in the chest, and small remains of iodized oil which were interpreted as representing lesions of the primary complex.

Miller emphasized the fact that blood vessels x-rayed axially produce shadows which may be confused with those of calcium. McPhedran states that such vascular artefacts are especially disturbing in films of infants, and troublesome in those of older children. In infants the vascular trunks closest to the larger vessels cause the artefacts, and these are large enough in proportion to the chest to suggest serious lesions. In such cases, slight rotation of the patient under fluoroscope, or taking the film at a different angle, will cause the false shadows to disappear, whereas those due to calcium persist.

Gass and co-workers, in Tennessee, sought to eliminate any error in the interpretation of x-ray films with negative Mantoux reactions. They sent their films to four other physicians of national reputation in tuberculosis. All observers agreed as to the presence of definite tuberculous lesions in approximately 25 per cent. In four of the five observations there was agreement in 46 per cent. The dose of tuberculin used in these patients was 1 mg. of old tuberculin.

Crimm and Short likewise used doses of tuberculin similar to ours and carefully minimized the questionable cases of calcification. Of 1,384 patients tested they found 191 or 13.8 per cent negative reactors in spite of roentgenologic evidence of calcification.

Another observation frequently made, and exemplified by one case in our series, is a loss of sensitivity after a previous positive tuberculin reaction. Our case, in 1934, showed definite tuberculous infiltration in both lung bases and a positive reaction to tuberculin. However, a year later, and ever since then, she has been consistently a negative reactor, even though her x-ray shows calcification.

Rich cites the following reports: Lloyd and McPherson studied 303 children, 2 per cent of whom became negative to 1 mg. of old tuberculin two years after the first test; Aronson followed 87 children, 9 per cent of whom became negative within five years. Horan found 14 per cent of a group of boys losing their sensitivity within a three year period, and Krause, Paretzky, and workers at Lymanhurst have made similar observations. Likewise, those working with Bacillus Cal-

mette Guerin vaccine have seen the sensitivity produced disappear unless the vaccine was kept up.

Apparently sensitivity to tuberculo-protein depends upon the presence of viable bacilli in the pulmonary complex, or upon repeated small exogenous infections. Which of these factors is no longer present in each of the patients could not be determined.

(Illustrative roentgenographic films were shown.)

---

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

- March 4. Board of Directors, Orleans Parish Medical Society, 8 p. m.  
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
- March 5. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.
- March 6. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Hutchinson Memorial Clinic Staff, 8 p. m.  
Mercy Hospital Staff, 8 p. m.
- March 7. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- March 11. Orleans Parish Medical Society, 8 p. m.
- March 12. Eye, Ear, Nose and Throat Society, 8 p. m.
- March 13. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Touro Infirmary Staff, 8 p. m.
- March 15. I. C. R. R. Hospital Staff, 12 noon.  
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- March 18. Hotel Dieu Staff, 8 p. m.
- March 19. Charity Hospital Medical Staff, 8 p. m.
- March 20. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Charity Hospital Surgical Staff, 8 p. m.
- March 21. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- March 26. Baptist Hospital Staff, 8 p. m.
- March 27. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
French Hospital Staff, 8 p. m.
- March 28. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- March 29. L. S. U. Faculty Club, 8 p. m.

During the month of February, the Society held its regular scientific meeting and a special

meeting. At the meeting held February 12, the following program was presented by guest speakers:

Historical Sketch: Dr. Francesco Antommarchi, New Orleanian and Physician to Napoleon.

By Mr. Robert Glenk, Curator of Department of Natural Sciences, Louisiana State Museum.

Interesting Case Reports.

By Drs. Dean H. Echols and Edward L. Levert.

Plasma Protein: Methods of Determination and Clinical Significance.

By Dr. Howard H. Beard.

Modern Medical Illustration.

By Tom Jones, B. F. A.:

Associate Professor and Chief Artist at the University of Illinois College of Medicine and Dentistry, Chicago.

On February 29, the Society held a joint meeting with The New Orleans Graduate Medical Assembly. The following program was presented by two of the Assembly guest speakers:

Localization of Tumors of the Brain; Role of Electro-encephalography (Moving Picture).

By Dr. Henry W. Woltman, Professor of Neurology, The Mayo Foundation, Graduate School, University of Minnesota, and Head of Section on Neurology, The Mayo Clinic, Rochester, Minnesota.

Complications about the Eye in Acute Infectious and Contagious Diseases (Lantern Slides).

By Dr. John A. Toomey, Associate Professor of Pediatrics, Western Reserve University School of Medicine, and Physician-in-Charge, Division of Contagious Diseases, City Hospital, Cleveland, Ohio.

The following doctors were elected to active membership: Drs. William McD. Boles, John L. Kron, and Richard W. Vincent. Dr. Moss M. Bannerman was elected to intern membership.

Dr. Alton Ochsner attended the Pan-American Post Graduate Medical Assembly in San Antonio, Texas, January 23-25. Following this meeting Dr. Ochsner attended the meeting of the Board of Regents of the American College of Surgeons which was held in Chicago, February 11.

The following officers of the French Hospital Staff were installed at the annual dinner held January 24: Dr. N. J. Tessitore, chairman; Dr. Philip Montelepre, vice-chairman; and Dr. R. E. Rougelot, secretary.

Dr. John T. O'Ferrall attended the meeting of the American Academy of Orthopedic Surgeons in Boston, January 21-25.

At a meeting of the Catholic Physicians' Guild held January 24, the following officers were elected: Dr. Daniel J. Murphy, president; Dr. Edmund L. Leckert, first vice-president; Dr. Edwin L. Zander, secretary; Dr. Narcisse F. Thiherge, treasurer; Drs. Edward F. Bacon, Joseph A. Danna and James T. Nix, board members.

Drs. William H. Perkins and Julius L. Wilson attended the annual meeting of the Tuberculosis and Public Health Association of Louisiana at Monroe, January 30-31. Dr. Perkins is president of this organization.

Dr. Isidore Cohn took part in a symposium on the Requirements for Undergraduate Instruction in Fractures, at a meeting of the Fracture Committee of the American College of Surgeons in Montreal on February 9 and 10.

At the annual meeting of the executive committee of the staff of the Southern Baptist Hospital on February 8, 1940, the following were elected: Dr. John T. O'Ferrall, chairman; Dr. Sam Hobson, vice-chairman; Dr. Edwin H. Lawson, secretary.

Dr. Roy B. Harrison presided at the meeting of the Federation of State Medical Boards of the United States at the meeting in Chicago, February 10. He also attended the meeting of the Committee on Interstate Endorsement and the Internship Committee of the Advisory Council on Medical Education.

Dr. A. J. Hockett attended the meeting of the Executive Committee of the American Hospital Association which met in Chicago, February 12-13.

Dr. T. A. Watters was appointed associate editor of "Diseases of the Nervous System," a new medical periodical designed to disseminate accepted and proved methods of treatment in nervous and mental diseases.

Dr. Julius Lane Wilson was appointed to serve on the Committee on Standards of Undergraduate Education in Tuberculosis of the American Trudeau Society.

Dr. James K. Howles attended the meeting of the Jefferson County Medical Society at Beaumont, February 12.

Dr. Neal Owens was a guest speaker before the Harrison County Medical Society at Houston, February 14, the subject of his paper being "Treatment of Burns."

#### TREASURER'S REPORT

Actual book balance 12/31/39.....	\$4,099.49
January credits .....	\$2,354.87

Total credits .....	\$6,454.36
January expenditures .....	\$1,800.33

Actual book balance 1/31/40.....	\$4,654.03
----------------------------------	------------

#### LIBRARIAN'S REPORT

During January, 117 volumes have been added to the Library; of these 86 were received by binding, 12 by gift, 1 by purchase and 18 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date, is appended to this report.

Members of the staff have collected material on the following subjects at the request of physicians:

- Vaccine treatment of chronic arthritis.
- History of the x-ray.
- Injuries to the pancreas.
- Life of Oliver Wendell Holmes.
- Extrophy of the bladder.
- Development of vascular surgery.
- Still's disease.
- Vitamins in surgery.
- Liver in deficiency diseases.
- Lymphatic cysts of the mesentery.
- Moniliasis.
- Treatment of Ménière's disease.
- Nephropexy.
- Cancer of the antrum.
- Intravenous use of sulfanilamide in gonorrhoea.

Our records show that 1,042 volumes were loaned to physicians during the month; an additional 983 were loaned to students for overnight use giving us a total circulation of 2,026. These figures do not include the great use of books and journals within the Reading Rooms.

#### NEW BOOKS

- Beck, A. C.: Obstetric Practice, 1939.
- Bland, P. V.: Practical Obstetrics, 1939.
- Magnuson, P. B.: Fractures, 1939.
- McLester, J. C.: Nutrition and Diet in Health and Disease, 1939.
- Mathews, A. P.: Physiological Chemistry, 1939.
- Marriott, W. M.: Infant Nutrition, 1939.

American Surgical Association: Transactions, 1939.

U. S. Public Health Service: Report of the Surgeon-General, 1939.

Eller, J. J.: Tumors of the Skin, 1939.

Madsen, Thorwald: Lectures on the Epidemiology and Control of Syphilis, 1937.

Sansum, W. D.: Manual for Diabetic Patients, 1939.

Greenhill, J. P.: Office Gynecology, 1939.

Coke, Frank: Asthma, 1939.

Cantarow, Abraham: Clinical Biochemistry, 1939.

Carter, R. F.: Diagnosis and Management of Diseases of the Biliary Tract, 1939.

Cohn, Ferdinand: Bacteria, 1939.

Fomon, Samuel: Surgery of Injury and Plastic Repair, 1939.

Perry, C. B.: Medicine for Nurses, 1938.

Breen, G. E.: Fever for Nurses, 1938.

Pickles, W. N.: Epidemiology in Country Practice, 1939.

Chesney, A. M.: Flowering of an Idea, 1939.

Rice, T. B.: In Training, 1937.

U. S. Public Health Service: Serodiagnosis of Syphilis, 1939.

Edwin L. Zander, M. D.,  
Secretary.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

### C A L E N D A R

Louisiana State Medical Society

April 22-24, 1940

New Orleans

### PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in March	Jackson
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

### AN INVITATION

New Orleans and the Orleans Parish Medical Society extend greetings and a very cordial invitation to attend the annual meeting of the Louisiana State Medical Society which will be held on April 22-24 in New Orleans. The Roosevelt Hotel has been selected as headquarters for the meeting.

An excellent scientific exhibit is being arranged, and any member of the Louisiana State Medical Society who might care to present an exhibit should write immediately to Dr. M. E. DeBakey, Chairman of the Scientific Exhibit Committee, Tulane University Medical School, 1430 Tulane Avenue. The space for the exhibit is limited and those of you who wish to participate should write at once.

In addition an excellent group of commercial exhibitors will be there.

The chairmen of the various committees are as follows:

Committee on Arrangements

Dr. H. Ashton Thomas, General Chairman

Chairmen of Subcommittees

Badges .....Dr. Earl C. Smith  
 Banquets.....Dr. C. L. Peacock  
 Commercial Exhibits.....Dr. H. B. Alsbrook  
 Decorations .....Dr. J. P. Palermo

Entertainment.....Dr. E. L. Zander  
 Finance.....Dr. G. H. Hauser  
 Golf .....Dr. W. C. Rivenbark  
 Halls and Meeting Places.....Dr. C. J. Brown  
 Hotels.....Dr. Joseph C. Menendez  
 Lanterns .....Dr. C. J. Tripoli  
 Luncheons.....Dr. G. J. Taquino  
 Publicity.....Dr. L. H. Strug  
 Registration.....Dr. P. G. Lacroix  
 Scientific Exhibits.....Dr. M. E. DeBakey  
 Signs.....Dr. George C. Battalora  
 Transportation.....Dr. P. A. Phillips  
 Women Physicians.....Dr. Ruth Aléman

Make your reservations early. Write immediately to Dr. J. C. Menendez, Chairman of the Committee on Hotels, c/o of the Roosevelt Hotel or the Secretary of the Louisiana State Medical Society, 1430 Tulane Ave.

L. H. Strug, M. D., Chairman,  
 Committee on Publicity.

### OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting was called to order on February 1 at 8 p. m. by Dr. J. Q. Graves, presiding in place of Dr. D. T. Milam. The minutes of the meeting of January, 1940, were read and approved.

A letter from Dr. Russell H. Frost, Director of the G. B. Cooley Sanatorium, was read. Dr. Frost asked the cooperation of the society for a tuberculosis testing program to be conducted at the Neville High School and also, for the appointment of a visiting consulting staff to the sanatorium. This was discussed by Drs. Talbot, Jones and Hunter. Dr. W. E. Jones moved that the chairman appoint a committee to consult with Dr. Frost and work out a plan. This was seconded by Dr. Talbot and passed. Dr. Graves appointed the following committee: Dr. W. M. Hunter, chairman, Dr. J. B. Vaughan and Dr. W. E. Jones.

L. L. Titche, M. D., Sec.

---

#### GRADUATE SCHOOL OF MEDICINE OF L. S. U. MEDICAL CENTER

Continuing its extension program in southwestern Louisiana, the Graduate School of Medicine of Louisiana State University presented two symposia in that section of the State.

On January 22, the Urology Department of the Graduate School of Medicine presented the following program at New Iberia, Louisiana, before the Iberia Parish Medical Society: "Hematuria" by Dr. H. W. E. Walther, Professor of Urology and Director of the Department; "Indications and Contradictions to Cystoscopic Examinations" by Dr. Hugh T. Beacham, Assistant Professor of Urology; "Treatment of Kidney Infections in General Practice" by Dr. Robert Sharp, Assistant in Urology.

On Wednesday night, January 24, a symposium on gastroenterology was presented before the St. Mary Parish Medical Society at Franklin, Louisiana. Dr. Daniel N. Silverman, Professor of Gastroenterology and Director of the Division in the Graduate School of Medicine, spoke on "Common Diseases of the Liver with Particular Reference to Jaundice." Dr. Herbert L. Weinberger, Assistant Professor of Medicine, spoke on "The Management of Gallbladder Disease," and Dr. Louis Ochs, Instructor in Medicine, spoke on "Infections and Metabolic Diseases of the Gallbladder."

These programs followed the symposium on "Pneumococcal Lobar Pneumonia" which was given by the Graduate School of Medicine on January 11 before the St. Mary Parish Medical Society at Franklin, Louisiana, when the following subjects were presented: "The Pathology and Pathogenesis of Pneumococcal Lobar Pneumonia" by Dr. John R. Schenken, Assistant Professor of Pathology and Bacteriology and Director of the Department; "The Diagnosis and Differential Diagnosis of Pneumococcal Lobar Pneumonia" by Dr. Robert Bayley, Assistant Professor of Medicine, and the "Treatment of Pneumococcal Lobar Pneumonia" by Dr. J. O. Weilbaecher, Jr., Instructor in Medicine.

#### THE FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

One of the largest meetings of the year, which will bring scientists from all over the country to New Orleans, will be held here March 13-16. The Federation is composed of four constituent societies which will meet simultaneously. These societies are: American Physiologic Society, American Society of Biologic Chemists, American Society for Pharmacology and Experimental Therapeutics, American Society for Experimental Pathology.

---

#### AMERICAN BOARD OF INTERNAL MEDICINE

The American Board of Internal Medicine will conduct oral examinations just previous to the meeting of the American College of Physicians in Cleveland and just in advance of the meeting of the American Medical Association in New York City.

Applicants who have successfully passed the written examination and plan to take the oral examination in 1940, should advise the office of the secretary at least six weeks in advance of the date of the examination they desire to take.

The next written examination for 1940 will be given on October 21. Applications for this examination must be filed in the secretary's office by September 1.

Application forms may be obtained from Dr. William S. Middleton, secretary-treasurer, 1301 University Avenue, Madison, Wisconsin.

---

#### AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathological examinations (Part II) for all candidates (Group A and B) will be conducted by the entire Board at the Atlantic City Hospital, Atlantic City, N. J., from Friday, June 7, through Monday, June 10, 1940, prior to the opening of the annual meeting of the American Medical Association in New York City on Wednesday, June 12, 1940.

---

#### ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The thirty-sixth Annual Congress was held at the Palmer House in Chicago, February 12-13. Louisiana physicians attending this meeting included: Dr. Urban Maes; Dr. A. J. Hockett, who also attended the meeting of the Executive Committee of the American Hospital Association, Dean B. I. Burns of L. S. U.; Dean Max Lapham of Tulane; Dr. Roy B. Harrison, and Dr. J. H. Musser. Dr. Roy B. Harrison, the retiring president of the Federation of State Medical Boards in the United States, delivered his presidential address on the evening of Monday, February 12. This dinner meeting was also addressed by Dr. Nathan



B. VanEtten, president-elect of the American Medical Association.

---

#### NEWS ITEMS

At the meeting of the Fracture Committee of the American College of Surgeons, held in Montreal on February 9-10, Dr. Isidore Cohn, Professor of Surgery and Assistant Director of the Department, Graduate School of Medicine, L. S. U. Medical Center, took part in a symposium on the "Requirements for Undergraduate Instruction in Fractures."

You are earnestly requested to announce in your journal the date for the U. S. Pharmacopeial Convention, namely, May 14, 1940, and to urge eligible organizations and colleges which have not yet done so to send for credential blanks to the secretary of the convention, L. E. Warren, 2 Raymond Street, Chevy Chase, Maryland.

Walter A. Bastedo, M. D.,  
President of the U. S. P.  
Convention of 1940.

Dr. W. H. Perkins, of New Orleans, was re-elected president of the Tuberculosis and Public Health Association of Louisiana at the meeting held in Monroe, January 31. Other officials to serve during 1940 are Captain G. B. Cooley, of Monroe, first vice-president; Dr. A. J. Hockett, of New Orleans, second vice-president; Walter F. Jahncke, of New Orleans, treasurer; Fred W. Hellbach, of New Orleans, assistant treasurer; Mrs. Joseph Friend, of New Orleans, secretary.

Dr. Hilliard E. Miller attended the meeting of the American Gynecological Club in Ann Arbor, Michigan, February 22-23. Dr. Miller is secretary-treasurer of this organization.

The medical profession of the State of Louisiana obtained reflected glory in one of the members of the State Medical Society, Dr. Marc M. Mouton, who was selected by the people of the state to become their lieutenant-governor for the ensuing four years. Dr. Mouton is to be congratulated on his election to this important position in the state administration.

Another physician candidate for the position of lieutenant-governor was Dr. J. C. Menendez who was defeated in the first primary after a close and exciting race.

Theses for The Foundation Prize of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, in amount \$150.00, must be submitted before June first to the secretary, J. R. Bloss, M. D., 418 Eleventh Street, Huntington, W. Va.

There is an opening for a young physician in Avinger, Texas. The local doctor recently died and the community has need of a physician. For information write Mrs. T. M. Johnson.

The next annual meeting of the American Association for the Study of Goiter will be held at Rochester, Minnesota, April 15-17, 1940. The program for the three day meeting will consist of papers dealing with goiter and other diseases of the thyroid gland; dry clinics conducted by guests of the association; and operative clinics conducted by the staff of The Mayo Clinic.

The association is offering the Van Meter Prize Award for the best essay presented in competition.

---

#### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending January 13, there were 193 deaths in the City of New Orleans, a drop of 32 from the previous week. These deaths were divided 127 white and 66 negro, with 17 deaths in children under one year of age. A slight increase characterized the report for the following week, which concluded January 20. The 206 deaths were separately 130 white and 76 negro, with 8 white children and 12 negro children under one year of age dying at this particular time. During the week which concluded January 27 there were 194 deaths, 121 of which were white and 73 negro and 18 in young children. A marked increase in the number of deaths occurred in the week ending February 3, there being a total of 257, divided 165 white and 92 negro. Four deaths occurred in white children and 17 in negro children under one year of age. For the week which concluded February 10, the deaths numbered 238; of these 166 were in the white and 72 in the negro population, with only 8 deaths in small babies. The marked increase in death rate of the first few weeks of the year, bearing in mind that the three year average for this period was 116, can rightfully be attributed to the most unusual and severe winter, a winter which is probably the coldest that the city has had in the past fifty years.

---

#### INFECTIOUS DISEASES IN LOUISIANA

For the week ending January 20, there were reported by the Bureau of Epidemiology of the Louisiana State Board of Health the following diseases in numbers greater than ten: Seventy-nine cases of syphilis, 55 of pneumonia, 43 of gonorrhoea, 21 of pulmonary tuberculosis and influenza, 19 of chickenpox, 18 of cancer, 14 of whooping cough, and 12 of scarlet fever. Of the more unusual diseases, two cases of typhus fever were reported, one each from Iberia and Orleans parishes; cerebrospinal meningitis was reported in one instance in Rapides Parish. For the week which came to a close January 27, for the first

time in many weeks, some disease other than syphilis led the list. This could be expected and anticipated. The two most prevalent were pneumonia, with 53 cases, and influenza, with 42 cases; followed by 27 cases of chickenpox, 26 of syphilis, 22 of pulmonary tuberculosis, 18 of scarlet fever, and 11 of cancer. An epidemic of influenza was beginning in the fifth week of the year, which ended February 3. This week there were 121 cases of this disease listed by the physicians of Louisiana. Syphilis, as usual, was at the head of the list with 137 cases; pneumonia took a heavy toll with 57 cases during this week. Other diseases numerically great were 27 cases of chickenpox, 22 of whooping cough, 18 of cancer, 15 of scarlet fever, 14 of gonorrhoea, 13 of pulmonary tuberculosis, and 10 of measles. This week a case of typhus fever was found in Avoyelles Parish; two instances of tularemia were found in Orleans Parish and one each in St. James and St. Mary. The influenza epidemic had obtained considerable proportions during the week ending February 10, there being 360 cases found in the state and reported. Pneumonia also was reported in 79 instances as contrasted with the usual to be expected about 40 cases at this time of the year. Other diseases in double figures included 142 cases of syphilis, 36 of pulmonary tuberculosis, 16 of cancer, 15 of measles, 13 of scarlet fever, and 11 each of chickenpox and diphtheria. This week a case of typhus fever was reported from St. Landry Parish; one instance of tularemia (imported) was reported in Orleans and one in Vermilion Parish.

---

#### CORRESPONDENCE

February 19, 1940.

Editor-in-Chief,  
New Orleans Medical and Surgical Journal,  
New Orleans, Louisiana.

Dear Doctor:

Re: Bogus Check Writer

Some weeks ago I wrote to you regarding a forger, who has been preying mostly on oculists and optometrists, giving the details I then had at my command. These details were printed in most every state medical journal and naturally produced some results in my learning much more about his methods and scope of operation.

I am enclosing a circular, which I have caused to be printed, containing much more information. It is self-explanatory, and my object now is to place this in the hands of every oculist in the United States. However, to do this at my own expense would be almost impossible. My only interest is to have this man apprehended and put out of circulation, so that other oculists may be informed and escape being victimized. I know of no better method than to have each state circularized and it appears to me that each state board or

state medical journal is in the best position to do this.

Yours very truly,

Herbert C. Kimberlin, M. D.

Note: A copy of this circular may be obtained from Dr. Kimberlin.—Ed.

February 21, 1940.

The Editor

New Orleans Medical & Surgical Journal  
1430 Tulane Avenue  
New Orleans, Louisiana

Dear Sir:

Will you be kind enough to publish the following in the next publication of your State Medical Journal for the Finnish Relief Fund, Inc.? It will be greatly appreciated if you will do this.

The Finnish Relief Fund, Inc. is sponsored by Mr. Herbert Hoover. It is approved by the Finnish Minister in Washington, D. C., His Excellency Hjalmar Procopé.

It has the main purpose of accepting for the Finnish people and transmitting to Finland any funds contributed for this great cause by the American people.

Contributions, unless specifically intended to be used for war material, will be used for food and clothing for the Finnish civilian population, many of whom are suddenly made homeless by having their houses irreparably demolished by the incendiary bombs from Russian aeroplanes.

Members of the American Medical Association are the only doctors who will be asked to contribute through this Fund.

It is hoped that the profession will respond as generously as possible. It is further hoped that every doctor will make some contribution, and no matter how small it may be, it will be gratefully accepted. We believe the profession should have one hundred per cent of its members become contributors to this most worthy cause.

No money is deducted for expenses from any contribution made through this Fund, and every dollar donated arrives in Finland worth one hundred cents.

The National Chairman of the Medical Division of the Professional Groups of the Finnish Relief Funds, Inc. is Dr. John Frederick Erdmann of New York.

A director (chairman) for the Medical Division has been or will be appointed from each state who will try to get in touch with every member of the American Medical Association of that state by such method as he deems best.

The Executive Director of the Medical Division is Dr. Kerwin W. Kinard who has offices at Fund Headquarters.

All checks should be made payable to the Finnish Relief Fund, Inc., and sent to the Medical

Division of the Finnish Relief Fund, Inc., 420 Lexington Avenue, New York, N. Y.

Thanking you for your cooperation and kindness, I am

Cordially yours,  
Kerwin W. Kinard,  
Director, Medical Division  
Finnish Relief Fund, Inc.

**WOMAN'S AUXILIARY**

**Louisiana State Medical Society**

President—Mrs. S. M. Blackshear, New Orleans.  
President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

**THE ANNUAL CONVENTION  
NEW ORLEANS—APRIL 22-24**

HEADQUARTERS—ROOSEVELT HOTEL

Registration Desk—Lobby, First Floor

Mrs. James W. Warren.....General Chairman  
Mrs. Daniel N. Silverman.....Vice-Chairman

**Honorary Committee**

Mrs. D. B. Barber                      Mrs. S. M. Blackshear  
Mrs. Aynaud F. Hébert                Mrs. Gilbert Anderson  
Mrs. Lucian W. Alexander

**Chairmen of Subcommittees**

Mrs. C. Grenes Cole.....Registration  
Mrs. Frank J. Chalaron.....Information  
Mrs. Andrew V. Friedrichs.....Tickets  
Mrs. John T. Sanders.....Printing  
Mrs. W. Peters Gardiner.....Publicity  
Mrs. Anees Mogabgab.....Exhibits  
Mrs. Willard Wirth.....Transportation  
Mrs. Joseph LaNasa.....Telephone  
Mrs. Adolph Jacobs.....Flowers  
Mrs. Michael DeBakey.....Pages  
Mrs. Jonas Rosenthal.....Luncheon  
Mrs. John Smyth.....Breakfast  
Mrs. Frederick L. Fenno.....Tea

**PROGRAM**

Monday, April 22

1:00 p. m. Registration...Lobby, Roosevelt Hotel  
Tuesday, April 23

10:00 a. m. Pre-convention Executive Board Meeting.....Roosevelt Hotel  
Mrs. S. M. Blackshear, presiding.

Invocation...Rev. Robert S. Coupland

12:30 p. m. Luncheon.....Arnaud's Restaurant  
(Tickets \$1.25)

Toastmistress...Mrs. W. R. Brewster

8:00 p. m. Open Meeting, Louisiana State Medical Society, followed by President's Reception, Roosevelt Hotel.

Wednesday, April 24

10:00 a. m. Breakfast.....Orleans Club  
(Tickets \$1.10)

11:00 a. m. General Session.....Orleans Club  
Mrs. S. M. Blackshear, presiding.

Invocation.....Rev. John J. Adams

Address of Welcome.....Mrs. C. R. Hume

Response.....Mrs. E. L. Gill

In Memoriam.....Mrs. J. M. Batchelor

Vocal Solo.....Mrs. Plauché Villere

Accompanied by Miss Edith B. Wolfe

Benediction.....Rabbi Mendel Silber

Presentation of Past Presidents' Pins.....Mrs. Courtland P. Gray

Reading of Minutes

Reports:

State Officers

State Committees

Parish Auxiliaries

Special Committees

Report of Woman's Auxiliary to A. M. A.....Mrs. Frederick G. Ellis

Report of Woman's Auxiliary to S. M. A.....Mrs. W. R. Buffington

Unfinished Business

Recommendations by Executive Board

New Business

Report of Nominating Committee

Election of Officers

Introduction of New Officers

Announcements by New President

Adjournment, immediately followed by Post-convention Executive Board Meeting.....Mrs. Roy Carl Young, President, presiding

3:30 p. m. Tea, in honor of Mrs. Roy Carl Young, Pontalba Tea Room, 546 St. Peter Street.

**AUXILIARY NOTES**

**ORLEANS PARISH**

The Woman's Auxiliary to The Orleans Parish Medical Society held its regular meeting on Wednesday, February 14. This was the first meeting with Mrs. Aynaud F. Hébert, the new president, presiding.

Mrs. Hébert and her co-workers are already deep in plans for the State Convention to be held in New Orleans, April 22-24, as evidenced by the program published in the first part of this news section.

Dr. G. C. Anderson, President of The Orleans Parish Medical Society, gave an interesting and worthwhile talk on "Periodic Health Examination."

The meeting was followed by a tea.

Mrs. D. C. Browne,  
Press and Publicity Chairman.

#### OUACHITA PARISH

The Auxiliary to the Ouachita Parish Medical Society met on Thursday, February 1, in Monroe, with several new members attending. Mrs. C. P. Gray, president, presided over the business meeting, when plans were completed for the annual Doctors' Day program on March 30.

Mrs. Morgan Simonton gave an amusing reading on the "Common Cold." The meeting was preceded by a luncheon.

Mrs. J. W. Cummins,  
Press and Publicity Chairman.

#### TALKS ON WAGNER BILL

Dr. Charles B. Odom, of New Orleans, spoke on the Wagner Health Bill on February 13 at a public meeting in Opelousas, sponsored by the Woman's Auxiliary to the St. Landry Parish Medical Society. Dr. Odom stated the provisions of the Wagner Bill and gave the objections of the reference committee of the A. M. A. Both Caddo and Washington parishes are having such meetings, open to the public, this month.

Mrs. F. C. Shute, Chairman,  
Committee on Public Relations.

#### MATERIAL FOR PROGRAMS

For the benefit of all parish auxiliary presidents, we would like to make the announcement that the Research and Romance Committee of the Woman's Auxiliary to the S. M. A. has on file valuable material which might be useful in carrying out auxiliary programs. Research has been made into the history of medicine and these papers should be of great interest. This material may be borrowed for a period of two weeks, postage both ways being paid by the borrower. Address Mrs. H. Leslie Moore, Chairman, 4204 Beverly Drive, Dallas, Texas.

#### A. M. A. CONVENTION

The eighteenth annual convention of the Woman's Auxiliary to the A. M. A. will be held in New York City, June 10-14, 1940, with headquarters in the Hotel Pennsylvania. In view of the fact that the second edition of the World's Fair will accelerate advance hotel reservations, it is urged that reservations be made immediately through the Housing Bureau, which has been set up by the A. M. A., under the direction of Dr. Peter Irving, Room 1036, 233 Broadway, New York City.

On March 30, Doctors' Day will be celebrated by all the auxiliaries in Louisiana. There will be many and varied ways in which our doctors will be told how much we honor them.

Respectfully submitted,

Mrs. Edgar Burns,  
Press and Publicity Chairman.

## BOOK REVIEWS

*A Textbook of Surgery:* Edited by Frederick Christopher, B. S., M. D., F. A. C. S. Philadelphia, W. B. Saunders Co., 1939. Pp. 1695. Price \$10.00.

This book, appearing in its second edition, has been revised to keep it abreast with the advancements in surgery. The same principle is adhered to as in the first edition, that is, each subject being written by a separate contributor. Many books on internal medicine have followed the same plan. Each writer, of which there are 188, presents his material in the manner he has found to be the most successful in instructing his students.

The book consists of 1,651 descriptive pages with many illustrations and well selected diagrams. Since the first edition many of the subjects have been revised, due to the death of the original contributors, and other subjects have been added by many able writers. The majority are well covered and to the point.

The etiology, pathology and diagnosis are ably presented but description of operative technic is woefully lacking. The bibliography is short, though well selected from recent references. The great advantage of a book so written is the ease with which it can undergo revision.

The reviewer readily recommends this book for reference, but not as a basic text.

EMILE BLOCH, M. D.

*Public Health Law:* By James A. Tobey, Dr. P. H., LL.D. New York, The Commonwealth Fund, 1939. Pp. 414. Price \$3.50.

It is with considerable hesitation that a physician approaches a book bearing a title which indicates that it deals primarily with law. The author of the book in question, a member of the New York Bar, is also a fellow of the American Public Health Association, an associate fellow of the American Medical Association, and lecturer on pub-

lic health law at the Harvard University School of Public Health and the Massachusetts Institute of Technology. In his preface he writes that the book is "the culmination of more than fifteen years' continuous study of the legal aspects of public health."

The excellent foreword is by Dr. Charles V. Chapin, perhaps the most able man concerned with public health in this country. One cannot resist the temptation to quote from this foreword: "In our complicated civilization, many restrictions must be placed on individual conduct in order that we may live happily and healthfully one with another. It is a common pastime to decry legislation. Many wittily declare that the most pressing duty of Congress and our state legislatures is to adjourn. Some of us differ decidedly from this view. Every one condemns unnecessary legislation and equally abhors ill considered and badly framed laws, but the relations of human beings are becoming more complex every day. It would appear that the rules governing these relations must become more complex. There is no doubt, too, that those who 'on general principles' condemn 'meddling legislation,' when it comes to specific problems affecting themselves, are in favor of rat proofing plague infected cities, of stamping out virulent smallpox by drastic measures, of compelling one city to cease discharging its sewage into its neighbor's drinking water and of dealing summarily with him who peddles tuberculosis with his milk. Doubtless sanitary instruction will increase by leaps and bounds, but doubtless there will also be in the near future more, rather than fewer, sanitary laws."

The book is divided into four sections: I. Public Health Law and Administration; II. Powers and Duties of Health Departments; III. Liability; IV. Legislation and Law Enforcement. One of the appendices is a decision of the Supreme Court, rendered in 1905, upholding a compulsory vaccination statute, and these particular pages are well worth study by any one interested in the broad legal basis for such public health procedure. A quotation from this decision (pp. 371-372) illustrates this point: "We are not prepared to hold that a minority, residing or remaining in any city or town where smallpox is prevalent, and enjoying the general protection afforded by an organized local government, may thus defy the will of its constituted authorities, acting in good faith for all, under the legislative sanction of the state. If such be the privilege of a minority, then a like privilege would belong to each individual of the community, and the spectacle would be presented of the welfare and safety of an entire population being subordinated to the notions of a single individual who chooses to remain a part of that population. We are unwilling to hold it to be an element in the liberty secured by the Constitution of the United States that one person, or a minority of persons, residing in any community and enjoying the benefits of its

local government, should have the power thus to dominate the majority when supported in their action by the authority of the state."

The book is not made up of a collection of dry quotations from statutes. It illustrates the application of laws to specific situations, and cites references to important legal decisions. Throughout are passages which amount almost to pleas or arguments for advancing the cause of public health.

To show that a knowledge of law and a knowledge of science do not always travel hand in hand, one learns with surprise that granuloma inguinale and lymphogranuloma are of bacterial origin (p. 166). One learns also that the application of scientific measures sometimes trails behind legal practice: on occasion the law has held municipalities financially responsible for typhoid fever (pp. 278-279).

On the whole, this is a very satisfactory volume, one which should be in the library of every health officer and every teacher of public health.

GEORGE W. MCCOY, M. D.

---

*Elementary Anatomy and Physiology:* By James Whillis, M. D., M. S., F. R. C. S. Philadelphia, Lea & Febiger, 1939. Pp. 342; illus. Price \$3.50.

The elements of anatomy are here treated in a manner which adapt this book to use by nurses, students of physical education and others for whom the subject must be much abbreviated and simplified. Physiology is subordinated to anatomy, but considered sufficiently to give proper emphasis to the functional significances of the structural features. The writing is simple and direct. The illustrations, all of which are new, are beautifully executed line drawings, wisely chosen and planned to fit the purpose of the book as an elementary text.

HAROLD CUMMINS, PH. D.

---

*Recent Advances in Industrial Hygiene and Medicine:* By T. M. Ling, M.A., B.M. (Oxf.), M.R.C.P. (London). Philadelphia, P. Blakiston's Son & Co., Inc., 1937. Pp. 212. Price \$3.50.

Like all "recent advances" series Ling's compilation has been highly selective of subjects to be included. The table of contents reveals the breadth of selections: I. Medical Supervision of Workers; II. Industrial Sickness; III. Industrial Accidents; IV. The Neuroses of Industry; V. Industrial Fatigue; VI. Ventilation; VII. Industrial Lighting; VIII. Dust and Its Effects; IX. Noise; X. Lead Poisoning; XI. Toxic Effects of Gases; XII. Industrial Dermatoses.

These titles are, of course, supplementary to the general literature and do not claim to be in any way exhaustive treatments of the subjects. References, however, are adequate.

The contents and treatment in general reveal the inroads general medicine and the specialties

have made into industrial medicine. The outline of the duties of the industrial physician and his moral and ethical responsibilities points well to the author's conviction, that this is one of the outstanding advances in industrial medical practice. The same may be said of the appreciation of the importance of individual variations in adaptability to specific types of work whether due to physical or psychic peculiarities.

For supplementary reading this is a good book. It does not go too far ahead of acceptable opinions on the subjects covered, nor does it unqualifiedly accept all the conclusions drawn by others, which the author wisely puts in quotes. It satisfactorily bridges the gap between the literature and the textbook on a subject of ever widening scope.

WILLIAM H. PERKINS, M. D.

*A Synopsis of Regional Anatomy:* By T. B. Johnston, M. D. Philadelphia, Lea & Febiger, 1939. Pp. xxi + 462; figs. 17. Price \$4.50.

Testimony as to the usefulness of the present volume is afforded by the call for successive editions since its first publication in 1921. The work is now in the fourth edition, and there has been one reprinting (of the third edition, 1936).

The design of the book is aptly indicated in the title. It makes no pretension to being more than a synopsis aimed to guide the student in review. It is neither a dissecting manual nor an abbreviated text, but a systematic organization of subject matter adapted to the review of regions previously dissected and studied with the aid of a standard text. Except in the section dealing with the central nervous system there are no illustrations, the omission being explained by the intent to encourage such review with the dissected parts before the student, as opposed to review on the basis of printed pictures. The arrangement, again as indicated in the title, is by regions with the exception that osteology is brought together in one section. The sections are: arm; leg; thorax; abdomen; head and neck; central nervous system and organs of special sense; osteology. Subdivision under each section is likewise regional, as exemplified by the following headings of the section devoted to the arm: pectoral region and axilla; scapular region; upper arm; front of forearm; palmar aspect of wrist and hand; back of forearm and hand; joints. There is a glossary of B. N. A. terms, accompanied by anglicized equivalents following the British revision. The latter are given precedence in the text. In the making of this fourth edition the book has been generally revised, and some new material has been added, particularly text and illustrations in the section on the central nervous system.

HAROLD CUMMINS, PH. D.

*Asthma:* By Frank Coke, F. R. C. S. Baltimore, The Williams & Wilkins Co., 1939. Pp. 266. Price \$4.00.

This is the second edition of a small but valuable book dealing chiefly with the etiology and control of asthma with a short chapter on the other forms of allergy. The usual theories and methods are brought well up to date. What impressed the reviewer most was that the author had not used lipiodol in any of his cases; the author stresses the use of autogenous vaccine. This conservative attitude is more than balanced by other parts of the book.

The four most interesting chapters deal with (1) the control of the aspirin sensitive patient with vaccine; (2) the control of the famous hemoclastic cases of the French authors with collosol manganese and sanocrysin; (3) oral pollen and oral peptone therapy; (4) the Földes diet in the water retention type of asthma cases.

The author deals with the use of histamine in asthma but fails to mention the earlier work of the reviewer along these lines.

The hope expressed by the author of helping others better to understand allergic and anaphylactic processes and of stressing the importance of searching for a microbic cause in special asthma group has been well materialized in these 258 pages.

NARCISSE F. THIBERGE, M. D.

*Diagnosis and Management of Diseases of the Biliary Tract:* By R. Franklin Carter, M. D., Carl H. Greene, M. D., and John Russell Twiss, M. D. Philadelphia, Lea and Febiger, 1939. Pp. 432. Price \$6.50.

As stated by the authors in their preface, "this discussion of the diseases of the biliary tract covers the recent concepts of basic factors in diseases of the gallbladder, their interpretation and specific management, as practiced in the clinic for the Study of Diseases of the Liver and Biliary Tract, of the Departments of Medicine and Surgery, New York Post-Graduate Medical School and Hospital, Columbia University, and gives a review of operative results in 3,986 patients treated during the past 20 years."

The book is composed of six parts. The first section is devoted to practical considerations concerning fundamental factors in biliary tract disease, including a review of the physiology of the gallbladder, the relationship of biliary stasis to biliary disease, the mechanism of pain due to biliary tract disease, factors influencing the formation of gall stones and the occurrence of jaundice, and the clinical application of hepatic function tests.

Part two is concerned with methods of clinic examinations for the diagnosis and study of patients with biliary tract disease. Included in this

part are descriptions of technic for tests of hepatic function, and biochemical methods of investigation.

In part three, the medical management of diseases of the biliary tract, including the care of postoperative patients who have been subjected to biliary tract surgical procedures, is presented.

The surgical management of biliary tract disease associated with gall stones, as well as dyskinesia of the gallbladder and common bile duct, are the subject matter included in part four.

Part five consists of a critique of operative experience in diseases of the biliary tract and surgical diseases of the pancreas, and includes discussions concerning the management of acute cholecystitis, perforated cholecystitis, and surgery of the common bile duct.

An appendix, designated as part six, includes tables which give information concerning food values of interest in the management of patients with biliary tract disease.

The authors have selectively garnered the important early as well as recent contributions to knowledge concerning diseases of the biliary tract, and within this comparatively small volume there is presented with remarkable completeness the modern concepts and methods of management which are of interest and practical application in biliary tract disease.

AMBROSE STORCK, M. D.

*Practical Obstetrics*: By P. Brooke Bland, M. D., and Thaddeus L. Montgomery, M. D. Philadelphia, F. A. Davis Co., 1939. Pp. 877. Price \$8.00.

The third edition of this useful book does credit to its authors. The format is pleasing in appearance and helpful to the reader, with excellent printing and large headings to make reference reading easier. Illustrations are numerous and instructive. Sections on subjects of special interest to the reviewer have been read with satisfaction and found fully adequate. The student or practitioner will find in this volume what he needs for efficient service to prospective mothers.

HERMANN B. GESSNER, M. D.

*Human Helminthology*: By Ernest Carroll Faust, A.B., A.M., Ph.D. Philadelphia, Lea & Febiger, 1939. Pp. 780. Price \$8.50.

In his preface to the first edition of this book the author called attention to the fact that in no field of parasitology had greater progress been made in both the clinical and biologic aspects than in helminthology, although the material in which that progress was set forth was widely scattered and was chiefly periodical. He therefore proposed to present in a convenient and accessible form this material, plus his own observations and experience. That he succeeded in his purpose is demonstrated by the fact that a second edition has proved necessary.

This is not surprising. The author is an author-

ity in his field, and the original text was both comprehensive and up-to-date. The second edition has all of the virtues of the first and should have the same appeal for and usefulness to clinicians, sanitarians and zoologists.

Both the important and the minor helminth infections in man are treated comprehensively and from the aspects of the structure of the parasite, its life cycle, geographic distribution, epidemiology, and pathogenicity, and the clinical manifestations, diagnosis, therapeutics, prognosis and prophylaxis of the parasitic diseases. The clinician will find the new section on anthelmintics and their use particularly helpful. The symptomatology and diagnosis of the various helminthiases are rendered more intelligible by the correlation of the clinical manifestations of helminth infections with the pathology and development of the parasites in the body. The excellent description of the pathologic changes caused by helminths might well be emulated in many textbooks of pathology. The zoologist will note with approval the adoption of the Chitwood and Chitwood classification of the more comprehensive groupings of the Nematoda.

With the usual thoroughness and accuracy which characterize all of his contributions, the author has included the important current literature on this subject. The technical appendix covers recent innovations in diagnostic procedures such as the NIH swab for *Enterobius vermicularis* ("pinworm" infection) and the zinc sulphate flotation technic devised in the author's own laboratory.

The text is profusely illustrated with original plates and drawings by the author, many of which have been redrawn and otherwise improved over those of the previous edition.

The book is notably free from errors and omissions, and not the least of its virtues is the careful proof reading, which has reduced the annoyance of typographical errors practically to zero.

J. CLYDE SWARTZWELDER, PH. D.

*Obstetrical Practice*: By Alfred C. Beck, M. D. Baltimore, Williams & Wilkins Co., 1939. Pp. 858. Price \$7.00.

This is the second edition of a textbook of obstetrics for students and young practitioners and as such is well-organized, well-illustrated and condensed to concise statements. It includes the recent advances in the endocrinology of pregnancy as well as revision in the chapters on toxemia, abortion, and other complications of pregnancy. A new chapter on retained and adhered placenta has been added.

The clear and concise presentation of the problems of obstetrics as well as the accompanying illustrations make this an excellent text for beginners and men who do a limited amount of obstetrics. For the graduate student, a more complete and thorough text is necessary.

JOHN C. WEED, M. D.

*The Flowering of an Idea:* By Alan M. Chesney, M. D. Baltimore, The Johns Hopkins Press, 1939. Pp. 87. Price \$1.50.

This play, written by the Dean of the Johns Hopkins Medical School, was presented May 4, 1939, as part of the celebration of the fiftieth anniversary of the opening of the Johns Hopkins Hospital. It traces the development of Mr. Johns Hopkins' idea to establish a hospital as part of the University which now bears his name. Speeches delivered at the opening of the Hospital make up a considerable part of the play. The aims and purposes of a university hospital are clearly expressed in the words of Dr. John Shaw Billings and Dr. Daniel C. Gilman.

EDWARD MATTHEWS, M. D.

*Physiological Chemistry:* By Albert P. Mathews, Ph. D. Baltimore, Williams and Wilkins Company, 1939. Pp. 1488. Price \$8.00.

Medicine is today rapidly becoming an exact science. Certainty is replacing guessing in the diagnosis and treatment of disease. Biochemistry, including chemistry and physics, is playing a leading role in this connection.

The sixth edition of Professor Mathews' well-known text on biochemistry is largely written for the student of medicine, the graduate student, and the busy physician. Each of the 35 chapters, occupying 1429 pages, has been revised. This shows the prodigious development of biochemistry at the present time. The book is divided into two parts, the first (11 chapters) is on the chemistry of protoplasm and the cell, and the second (24 chapters) is on the mammalian body considered as a mechanism, its growth, maintenance, energy transformations and waste substances. Numerous references to the literature are given and the index occupies 37 pages.

The fundamentals of the chemistry of the body are brought up to date and are presented in an interesting and instructive way. This gives the reader a good knowledge of the present day point of view in this field. The chapters on digestion and absorption, respiration, skin and eye, endocrines and vitamins, will be especially interesting to clinicians specializing in these fields.

HOWARD H. BEARD, PH. D.

*Dr. Colwell's Daily Log for Physicians:* Campaign, Illinois, Colwell Publishing Company, 1940. Price \$6.00.

A volume which provides a daily record system for the doctor who wishes an easy way to keep his accounts accurately. Charges, receipts, and expenses are entered as they come along, then with simple arithmetic, in a few minutes' time, important figures appear. Net profit for the month, for the year, income tax essentials, otherwise so laboriously figured, collection losses,—these and

other items are easily located, ready for future reference.

PHILIP H. JONES, JR., M. D.

*Fevers for Nurses:* By Gerald E. Breen, M. D., Ch. B. (N. U. I. Dub.), D. P. H., D. O. M. S. (R. C. P. Lond., R. C. S. Eng.). Baltimore, William Wood and Company, 1938. Pp. 199. Price \$2.00.

Concisely presented in commendably simple language, this digest of lectures delivered to London nurses (to prepare them for examinations as "Fever-Nurses") is a direct answer to the author's propounded question, "How much is the nurse expected to know?" Explicit directions are given for the nurse's conduct when confronted with a febrile patient or one with a communicable disease, simple means of differentiating among the exanthemata are stressed, and outlines of therapy are presented. Any nurse studying or any instructor teaching "communicable diseases" will profit by reading this small book.

SYDNEY JACOBS, M. D.

#### PUBLICATIONS RECEIVED

Lea & Febiger, Philadelphia: Congenital Cleft Lip, Cleft Palate and Associated Nasal Deformities, by Harold Stearns Vaughan, M.D., D.D.S., F.A.C.S.

J. B. Lippincott Company, Philadelphia: Shock, by John Scudder, M.D., Med. Sc.D., F.A.C.S.

John B. Pierce Foundation, New York City: Pneumoconiosis (Silicosis). The Story of Dusty Lungs, by Lewis Gregory Cole, M.D., and William Gregory Cole, M.D.

W. B. Saunders Company, Philadelphia: Injection Treatment, by Penn Riddle, B.S., M.D., F.A.C.S. Disease of the Gallbladder and Bile Ducts, by Waltman Walters, B.S., M.D., M.S. in Surgery, Sc.D., F.A.C.S., and Albert M. Snell, B.S., M.D., M.S. in Medicine, F.A.C.P.

U. S. Government Printing Office, Washington, D. C.: Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1938.

The Williams & Wilkins Company, Baltimore: The Abraham Flexner Lectures, Series Number Six, on Oxidation, Fermentation, Vitamins, Health and Disease by Albert V. Szent-Györgyi, M.D., Ph.D. (Cantab.), D.H.C.

The Year Book Publishers, Chicago: Manual of Fractures, Dislocations and Epiphyseal Separations by Harry C. W. S. deBrun, M.D., F.A.C.S.



# New Orleans Medical

and

# Surgical Journal

Vol. 92

APRIL, 1940

No. 10

DR. CHARLES C. BASS, DEAN\*

AN APPRECIATION

RUDOLPH MATAS, M. D.  
NEW ORLEANS

"You should not be

The grave of your deserving; Rome must know  
The value of her own; 'twere a concealment  
Worse than a theft, no less than a traducement,  
To hide your doings."

Coriolanus, Act 1, Sc. IX.

Someone has said that a single flower in a man's buttonhole is worth a ton of roses piled upon his grave. Today we have assembled here to put a few flowers in the boutonnière of a dear and honored friend. Not that he needs to wear them, but that we need to bestow them; for any nation or institution that fails to honor its citizens who have arrived and achieved, will have no young men tomorrow capable of arriving or desirous of achieving. And further, does not the Scripture as expounded by its most renowned apostle exhort us "to render to all their dues; tribute to whom tribute is due; custom to whom custom; fear to whom fear; honor to whom honor;" and, are we not enjoined by the same holy authority, "Do that which is good, and thou shalt have praise of the same."

Dr. Bass' life and works are familiar in their greater outlines, to those of us who have lived in his environment, but there

are several notable facts in his heredity and early childhood which are important in foreshadowing the most striking features of his professional career.

Born on his father's farm at Carley, Marion County, Mississippi, on January 29, 1875, exactly 65 years ago, he was descended from a long line of sturdy, long lived, energetic and God-fearing people who had been made comfortable and happy by their wise cultivation of the soil, as farmers and planters, until the Civil War and its consequences came to prostrate them financially. Dr. Bass speaks reverently of his father and mother and of their influence in shaping his future destiny. From them he inherited an unlimited flow of energy and by their precepts and example, he had instilled into him the severe, but salutary, philosophy of a life of labor, constant and faithful devotion to duty, perfect honesty and uncompromising rectitude.

His mother, Eliza Wilks, still living at 85, is a wonder of energy, managing her household and business interests.

The father, Isaac E. Bass, was descended of a family proverbial for their honesty and inexhaustible capacity for work. "None can work as hard as a Bass," was the current saying in the county. At his death on October 14, 1933, at 83 years, he was survived by his devoted wife and seven of their children: Dr. C. C. Bass, Dr. Elizabeth Bass, Dr. Cora Bass (Mrs. A. A. Pigford), Rear Admiral Ivan E. Bass, U. S. N., Mr. Isaac H. Bass (who manages the family estate and owns the Bass pecan industries), and two married daughters,

\*Address on behalf of the Administrators and Faculty of the Medical School of Tulane University of Louisiana, at a luncheon given in honor of Dr. C. C. Bass, on his retirement from the deanship, on January 27, 1940, at the Hutchinson Memorial Building.

Mrs. A. S. Applewhite and Mrs. H. W. Greer. From an admirable oration delivered over his remains by one of his closest friends—Senator H. C. Yawn, of Mississippi—we are told that Isaac Bass was a cheerful, trustful, hopeful spirit, undaunted in adversity, honest to self torture, in the discharge of his obligations. He lived to recover his lost fortune and to be solaced and comforted in his last days by the consciousness of the great legacy he was leaving to posterity by giving the world sons and daughters who had attained notable distinction in their chosen fields of labor, far beyond his fondest expectation, and who, by their outstanding services to humanity, had not only brought fame to themselves but blessings to the world.

According to one of his best informed biographers, Dr. Bass as a child showed an inquisitive mind, stimulated by his parents, who gave him unceasing encouragement in his school studies and in his boyish, but original experiments. As a result, the boy, Charles, doctored his father's animals; he used his father's shops to make his own wagons, machines and fish traps; he experimented with such widely diversified hobbies as bees, and flying machines.

At 14, he went to Jackson and graduated from Wyatt business college. At 15 he entered the High School at Columbia, Mississippi, and graduated at 18 (1893). This high school course and his preliminary country school training were the extent of his general education. The next two years he spent at home working with his father. His last farm work was to raise a crop of cotton, and his father gave him the proceeds of that crop for his first year in the Medical School.

During these early years the local physician (Dr. L. D. Dickerson) lived in his father's house and before he was out of his teens, Charles had medical books of his own. Encouraged by his parents, he had read some medicine before entering the medical school.

At 22, he married Miss Coraline Howell, of Edwards, Mississippi, and from this

happy union three daughters and a son were born.

In the fall of 1896, he matriculated in the Medical Department of Tulane and was graduated M. D. in 1899. Characteristic of his enterprise, he passed the medical examination of the Mississippi State Board of Health and during vacations practiced in the vicinity of his father's farm.

As his father had suffered heavily in a great financial panic, Dr. Bass sent himself through his second and third years in the medical school, using borrowed money to a great extent.

After graduation (1899) he located in Columbia, Mississippi. It was the town where he had been a lively school boy. The family physicians of the region were two mature, well established men, to whom everyone readily accorded the title "Doctor," but Dr. Bass was a plain "mister" to these people. However, "Mister Bass" or "Doc Charley" understood his native country and its people and at the end of five years was "Dr. Bass" in earnest, with an extensive country practice. Before the end of the period he began to realize his need of a fuller knowledge of medicine. In 1903, he attended the meeting of the American Medical Association in New Orleans. There he heard papers read on hookworm disease, which had not, at that time, attracted general attention, nor was it supposed to exist in the United States to any extent.

While listening to these papers, he said to himself, "Hookworm! that's what's the matter with those children back there in the country." He bought a microscope and went back determined to study those children. During the next seven or eight months he was able to recognize and treat 75 or 80 cases of hookworm disease and in this way was one of the first to appreciate the importance of uncinariasis in the South (1903).

These early revelations of the advantages of scientific training for laboratory research deeply impressed him, and it was his varied laboratory experience that was the most important factor in molding the plan of his later life. Realizing the paramount importance of the microscope in the

diagnosis of disease, he registered at the Johns Hopkins Hospital in 1904, where he spent the greater part of that year working at clinical microscopy with Dr. Charles E. Simon and in the clinics and the laboratories of the Hospital. It was then he realized his liking and decided inclinations for research.

After his stay at the Johns Hopkins School he decided to locate in New Orleans and he opened offices in the Macheca Building in October, 1904. He soon realized that the people of the city differed greatly in their living conditions and ways from the farmers of Marion County and that he, himself, was a "country doctor." Presently, Dr. John B. Elliott, Sr., took him under his kindly patronage and gave him a chance to teach as clinical assistant at the College, in his department (1905). It was a great opportunity for a young man, although no salary was attached to the position. As he had but little practice, he devoted himself to research. To this end he fitted a private laboratory in his own home, where he did most of his work in perfecting the technic and epidemiology of hookworm disease. His continuous work in this field put him in line for promotion; his teaching and laboratory ability became recognized and in the spring of 1907 he was appointed a salaried assistant in the laboratories of clinical medicine. With this appointment it may be said that Dr. Bass' scientific career fairly began and once started, his *curriculum vitae* sped on at a rapid pace. From 1907 to 1909 he became the director, and continued in charge until 1912, when he was elected Professor of Experimental Medicine, a position which he has held to this day, despite the arduous and time consuming duties of the Dean's office, to which he was elected in 1922, and has continued to hold to the present day of his retirement, January 29, 1940,—18 years.

In summing up his professional career, we see that he has been 41 years a Doctor of Medicine, M. D. Tulane (1899-1940); 35 years continuously a teacher in Tulane, including 18 years of his deanship in the faculty. He was 24 years old when he graduated M. D.; 30 years when appointed in-

structor; 37 years when Professor; 47 when Dean, and 65 at the close of his deanship.\*

It would be out of order on this occasion to attempt to enumerate the multitude of researches and productive experimental studies that he has contributed to the progress of hemic and intestinal parasitology in all its aspects. His work on malaria and his discovery of a method of cultivating the specific organism (1911)—the Plasmodia,—in all its polymorphous aspects *in vitro*, outside of the human body, may be regarded as his *magnum opus* and a great technical triumph in hematic parasitology. It has permitted the study of the natural history and reactions of this parasite in all its purity and its differentiated types. All the great parasitologists and hematologists, such as Theobald Smith and C. W. Stiles, had deemed this feat impossible. But Dr. Bass' ingenuity, skill and patience prevailed over obstacles, and he fairly succeeded in raising a pure and unadulterated breed of the parasite at will, just as he had succeeded previously in isolating the ova of the uncinaria, or hookworm, by making them perfectly free from the intestinal excreta.

In April, 1912, he sailed for Panama, with Dr. Foster M. Johns (Tulane, 1912) as assistant, under the auspices of the Department of Tropical Medicine of Tulane, and remained there three months working with all the facilities afforded by Col. Gorgas, at the Government Hospital in Ancon. Time and constant watchfulness are necessary for the success of such investigations. Dr. Bass has been heard to say (but not for publication) that during his stay in Panama, he worked 15 hours a day and took only two Sunday afternoons off. On his return the cultures, specimens, photographs, apparatus and technic employed were exhibited by Dr. Bass at the International Congress of Hygiene and Demo-

---

\*A review of the chronology of the deans of the medical school shows that Hunt was the youngest when appointed (26 years); Chailié the oldest when appointed (55 years) and the longest in office (23 years). Second in point of years in office was Richardson, who served 20 years; Bass is third (18 years); and Dyer, fourth (15 years). (See supplement).

graphy held in Washington, September 23-28, 1912. Dr. Bass' malarial exhibit was regarded as the leading feature of the Congress. Bass had triumphed and completed the pathogenic trinity of malarial causation. A Frenchman, Laveran, had been the first, in 1880, to discover the parasite in the blood; Ronald Ross, an English army surgeon had described its mode of transmission by the anopheles mosquito in 1899; it remained to Bass, an American, once a Mississippi country doctor, to discover the means of breeding it at will in all its purity that it might be the better studied.

There is no doubt that if an anthology of the malarial plasmodium—this beautiful, but fearfully dangerous parasite—is ever published, it will claim Dr. Bass among its most conspicuous contributors.

It was for his commanding position in the field of research and for his contributions to medical education that he was chosen President of the Southern Medical Association in 1926.

His scientific merit has been recognized by many societies which have conferred on him numerous titles and honors, notably by the award of gold medals by the Southern Medical Association, by the American Medical Association, by the Mississippi Medical Association, by the Orleans Parish Medical Society, all in recognition of the originality and great importance of his scientific work, and conspicuously for his researches in malaria; and no less, a gold medal by the National Institute of Social Sciences for contributions to the welfare of mankind.

Without pretending to do justice to his work in other fields of research, besides malaria and uncinariasis, his early investigation of the opsonic index and autogenous vaccines, which took him to England in 1908 to study the methods of Sir Almroth Wright; his later work in the vitamin diseases, beriberi and pellagra (which he was the first to recognize in Louisiana); his simplified methods of diagnosing typhoid fever; his known studies in pyorrhea and amebiasis; and, latest of all, his discovery of the cause and mode of transmission of

the "quail disease" so important for the future success of the quail farming industry, will suffice to show Dr. Bass' versatility and enterprise. This last contribution was undertaken after Dr. Bass' sixty-fourth birthday, and while very busy and active with the administration of the Medical School.

In closing this very sketchy survey of Dr. Bass' activities, I can only stress his merit as a contributor to the progress of the medical science in the particular department in which he figures most conspicuously. I believe the judgment of the experts who are most competent to pass upon his merits has long ago accorded him a high seat in Louisiana's Hall of Fame, and has inscribed his name as an indelible intaglio in the memorial tablets of America's contributors to scientific discovery for the good of humanity at large.

From the viewpoint of Tulane, the benefits derived from Bass' 35 years of teaching have been incalculable, especially to the thousands of our alumni who have been trained under his eyes in a department of medical science (clinical microscopy and experimental medicine) which is a *sine qua non* in the modern concept of a doctor's training, a department which Dr. Bass, himself, lifted in this school from the pioneering stage to the present proud position it now occupies in all progressive medical schools.

But more than this, the scientific career of Dr. Charles Cassidy Bass will remain a perennial example of success of the highest scientific order attained despite the hardships and obstacles that the actual practice of medicine in a rural district would seem to oppose to the realizations of any scientific ambitions on the part of the practitioner.

In going over the biographic records of the 13 professors who have occupied the Dean's office in the course of the 106 years that the medical department of Tulane has been in existence since its foundation in 1834, we find that they were, each and all, men of outstanding general ability, and distinguished experts in the various departments in which they specialized. Apart

from the functions of the deanship, all, with very rare exceptions, have left their imprint upon medical history or upon medical literature. As a whole, they represent a great and glorious company of whom this institution may well be proud, for they are all worthy of a crypt in the pantheon of Louisiana's medical immortals.

\* \* \*

While Dr. Bass' record as a scientist, discoverer and teacher needs no further commentary, I beg for a few more moments of your indulgence to comment briefly on the final results of his administration. Here we must halt at the very threshold of the discussion to recognize that no dean, to my knowledge, has been tasked with heavier burdens or more complex problems than those which assailed Dr. Bass at the very onset of his administration. Suffice it to mention the building of the Hutchinson Memorial, the delicate negotiations required to meet his specific bequests and those of the philanthropic foundations; the architectural problems involved in erecting a structure that would meet not only the actual requirements of medical education, but those of the near future which were looming in the horizon. It was in meeting these requirements that Dr. Bass employed an originality and clairvoyance that has made this building and the teaching that is being conducted in it an unique school, unrivaled by any other building designed for the same purpose. One outstanding feature is the arrangement of private offices for each senior medical student who consults patients and conducts his office in a professional manner for a year before graduation. This system, first instituted at Tulane, has been adopted by several other large medical schools.

I consider that the remarkable and unique success of the architectural plans of the Hutchinson Memorial Building to meet the requirements of medical education, medical charity, medical library and the manifold socio-medical functions of hospitality in the service of medical organization—which it fulfills so admirably—is largely, if not entirely, due to the clear, al-

most prophetic vision of the future needs of the medical school by Dean Bass. For this magnificent achievement the University and the medical profession of this city and state, I believe, have contracted with him an unpayable debt.

The transfer of the Medical School from Canal Street to its present site, at the close of 1930, and the formal opening of the Josephine Hutchinson Clinics for the poor in 1931, finally brought the long delayed and long desired consummation of Mr. Hutchinson's dream of a fitting memorial to his beloved wife, Josephine, for which he had left the bulk of his fortune, amounting to nearly a million dollars at his death, on December 7, 1902. As the physician and friend to whom Mr. Hutchinson had confided his intentions, I deem the moment opportune to express Mr. Hutchinson's gratitude, were he living, on seeing his philanthropic, educational and memorial purpose so admirably fulfilled in the beautiful and marvelously conceived building that the masterful mind and endless devotion of Dean Bass brought into a living, pulsating reality during his administration.

The most notable and momentous event in the history of Dean Bass' administration was, no doubt, the establishment of another medical school across the street, in Charity Hospital, immediately following the erection of the Hutchinson Memorial, which the malevolent spirit of a despotic politician had conceived as a deadly thrust at the prosperity of Tulane. Fortunately, this menace has been dissipated and made groundless since the erection of the new Charity Hospital. The just apportionment of its vast resources as planned by the late Director, Dr. Bel, to meet the demands of medical education, conjointly with the wisdom of the administrators of the Hospital in recognizing the fundamental rights of the Medical School of Tulane University of Louisiana as an inseparable and inalienable part of its foundation and historic mission, has given to our school every opportunity to pursue its educational mission unimpeded and in perfect harmony and cooperative relationship with the Hospital. Again,

the Faculty of the new school is so largely constituted by our own graduates, that the operation of the two schools, side by side, under the same roof in the hospital has led to the feeling that the new building actually stands for an expansion of space to accommodate the growing needs of the same family. At any rate, what was at one time a nightmare, has been converted at the close of Dean Bass' administration, into a pleasant dream for which, I am sure, we are all thankful.

What is most comforting and assuring is that the Medical School of Tulane has never been more prosperous, more renowned and in greater enjoyment of its historic prestige and in the effectiveness and efficiency of its educational mission than at this moment, now,—at the close of Dean Bass' term of office. I say this with all due deference and admiration of the achievements of his illustrious predecessors, and gladly, for it is withal the most fragrant wreath of laurel on the desk of Dr. Bass, and the greatest inspiration for the waiting energies of his incoming successor.

If I were to sum up the distinctive characteristics of Dean Bass' deanship, I would say they are precisely like those which he has displayed in his scientific work, which, in turn, are largely those of his hereditary traits, namely: capacity for taking infinite pains in the accomplishment of his task, seeing problems and working with perseverance to solve them, skepticism in interpreting phenomena as facts without much retesting of results, precision and exactness in technic, uncompromising fidelity to truth, rectitude and straight dealing in all the relations of life, with inability to disguise the true sentiments—moving always in straight lines, seemingly avoiding curves and detours. Evidently never believing in the quadrature of the circle, he has not accepted the circling of the square. Diplomacy, in its politically accepted sense is certainly not one of his arts, but he leaves his office with perfect demonstration that very successful accomplishments are possible without resorting to undulant lines.

\* \* \*

Finally, my dear Dean and friend, I have

come to the real purpose of my task,—a task made seemingly interminable by the luxurious wealth of your achievements, but still necessary since a recital of these seemed to be required in accordance with academic and military usage as a citation of achievement before presenting the insignia of merit. Therefore, in compliance with the wishes of the Faculty and Administrators, permit me to transfer to you this token of their respect, gratitude and admiration, for the services, honor and glory that you have given your Alma Mater, and to us, her sons, the alumni.

In conclusion, the Faculty fully realizes that this tablet is intrinsically an insignificant token of their appreciation, but trusts that you will always keep it in the spirit which it conveys. Your real reward lies in the monument that you have erected for yourself in the spot on which we stand,—in this way closely reminding us of the famous inscription under the statue of Sir Christopher Wren, the Architect of St. Paul's Cathedral in London, which reads, *Si monumentum queris, circumspice!*

#### SUPPLEMENT

##### Chronology of the Deans of the Medical School of Tulane University

Dean	Born	Age Years		Deanship
		when ap- pointed	in office	
Hunt .....	1808	26	1	1834-35
Luzenberg .....	1805	30	1	1835-36
Barton .....	1796	40	4	1836-40
Harrison .....	1808	32	1) 2) 3)	1840-41 1842-44
Jas. Jones .....	1807	34	1) 2)	1841-42 1848-49
Cenas .....	1808	36	1	1844-45
Carpenter .....	1811	34	1	1845-46
Wedderburn .....	1813?	33	2	1846-48
Nott .....	1816	33	3	1849-52
Richardson .....	1827	38	20	1865-85
Chailé .....	1830	55	23	1885-1908
Dyer .....	1865	43	13	1907-20
Bass .....	1875	47	18	1922-40
Lapham .....	1899	41		1940-

Average age when appointed, 40.1 years.

## CARCINOMA OF THE RECTUM\*

## SYMPTOMS AND DIAGNOSIS

WARREN H. HEBERT, M. D.†  
NEW ORLEANS

The incidence of carcinoma of the rectum is greater than usually considered. It constitutes about 6 per cent of carcinomas of the human body, about 25 per cent of carcinomas of the gastrointestinal tract and about 50 per cent of carcinomas of the large bowel. Carcinoma of the rectum is next in frequency to that of the stomach if malignancy of the breast and cervix are omitted. Carcinoma of the rectum is the second most frequent site of carcinoma of the gastrointestinal tract.<sup>2</sup>

The importance of carcinoma of the rectum cannot be overemphasized. Whether it is becoming more prevalent or the clinician more aware of its presence is a matter of conjecture. The fact that more cases of carcinoma of the rectum are being recognized has been established. According to a recent report from one of the large life insurance companies the increase in deaths attributable to carcinoma is largely due to the decline of the death rate of other diseases.<sup>2</sup> The incidence of carcinoma of the rectum diagnosed during the early stage of development is largely dependent upon the index of suspicion of the clinician. The improvement of the technic of examination and the more widespread use of the sigmoidoscope are the most significant factors accounting for the greater number of cases diagnosed during the early stage of development.

It is possible that public health education for early recognition of carcinoma of the rectum will assist the layman as it has done with carcinoma of the breast and cervix. If such education is continued, we may look forward to the day when a patient who has rectal discomfort will think of the possibility of carcinoma instead of hemorrhoids. As long as patients make little of rectal

complaints and attribute their discomfort to hemorrhoids it will be difficult to diagnose carcinoma during the early stage of development. We should urge individuals to seek medical attention before bleeding from the rectum occurs. Consciousness of the rectum should warrant the suspicion of carcinoma or other local disease. Patients with symptoms referable to the lower bowel rarely consult a physician during the early period of their illness. After the various home and drug store remedies have failed the physician is consulted.

The frequency with which carcinoma of the rectum occurs is sufficient to explain the importance of this lesion. Also, recent statistics with reference to the curability of carcinoma of the rectum reveal its further significance. A study of the patients operated upon by Rankin during recent years revealed that 60 per cent or better survived a period of five years following operation. He is of the opinion that the radical procedure of Miles or its modification is the operation of choice. On the other hand, "individualization is so necessary that one has to have several operations at one's command when undertaking this type of work."<sup>4</sup>

## GENERAL SYMPTOMATOLOGY

Approximately 5 per cent of all tumors occur in locations where they can be seen.<sup>3</sup> Therefore, it is necessary for the remaining 95 per cent of tumors to produce irregularity of function before their presence can be detected. During the early stage of development of carcinoma, the physiologic function of the organ in which it is located may remain unaltered. If a lesion is to be diagnosed during the early stage of development then the first change of function of that organ should serve as a signal to investigate the cause of dysfunction.

Most articles and textbooks refer to bleeding, pain, constipation and diarrhea as the symptoms of carcinoma of the rectum. These symptoms are most often associated with the growth during the advanced stage of development. The first symptom experienced by patients is rarely mentioned for they are more concerned with the onset of their most recent trouble which is unmis-

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

†From the Department of Surgery, School of Medicine, Tulane University of Louisiana.

takable evidence that something out of the ordinary has taken place.<sup>3</sup> This explains why so many individuals mention pain or bleeding as the first indication of their trouble.

The subjective and objective manifestations of carcinoma of the rectum vary with large limits. The symptoms of carcinoma of the rectum can be divided into two large groups: (1) Early, during the first stage of development of the growth, and include (a) consciousness of the rectum; (b) alteration of the normal bowel habit with or without an upper gastrointestinal disturbance; (c) aggravation of rectal or anal disease present. (2) Late, present during the more advanced stage of development of the growth, and are (a) gross bleeding; (b) pain; (c) constipation or diarrhea; (d) frequency of urination. The symptoms, listed in the order in which they usually appear are: (1) Irregularity of bowel habit; (2) consciousness of the rectum; (3) diminished appetite; (4) fatigue; (5) loss of weight; (6) bleeding; (7) pain, and (8) frequency of urination.

#### EARLY SYMPTOMS

*Consciousness of the rectum:* The term consciousness of the rectum includes indefinite sensations noted during the early stage of development of the growth. The early disturbance of function produces symptoms not unlike those associated with an "irritable rectum." At first, discomfort is noted when stool is in the region of the growth. The presence of a growth in the rectum increases the irritability of that organ. When stool comes in contact with the growth a sensation of fullness and distention produces a forceful desire to defecate. At such stage of development an individual who has been suffering from constipation may experience more regularity with the daily evacuation. The evacuation is more complete and without the abnormal stimulus of a cathartic. The irritation from the lesion causes excessive secretion of mucus. It accumulates within the rectum and is usually expelled with the daily evacuation of stool. Large amounts of mucus lubricate the anal canal and tend to delay the early appearance of distress.

As the lesion increases in size the irritability of the bowel becomes more marked. Under normal conditions mucus is secreted from the goblet cells in small amounts but irritation from the growth produces the secretion of mucus in large amounts. As the fecal material comes in contact with the growth a desire to empty the lower bowel is experienced. This produces an urgency or frequency, a strong stimulus to evacuate the lower bowel. The strong stimulus to defecate is usually followed by the passage of a small or large formed stool. There is usually very little pain following defecation because of the lubrication produced by the mucus. As a rule, an unusual amount of gas and mucoid secretion accompanies the bowel movement. During the early stage of development the presence of fecal material in the region of the growth usually produces a series of sensations which bring about defecation. On the other hand, defecation may become more difficult and less frequent. The urgency or desire to evacuate is present and relief is obtained if gas or mucus is expelled. It is important to realize that alteration of the habit of defecation will depend to a great extent on the appetite and the food ingested.

As the growth progresses in size, symptoms no longer depend upon the presence of stool in the region of the growth. Usually the desire to defecate produces frequent expulsions of gas and mucus. The mucus may or may not be streaked with blood. There is a sensation of fullness or heaviness as though the lower bowel is not empty. A sensation that the "evacuation is incomplete" is noted. As the growth increases in size there is further disturbance of normal bowel habit. The bowel functions in a sluggish manner or there has been an increase in the number of stools. As a rule, the consistency of the stool during the early stage of development is hard or soft. There may be a tendency towards a sluggish bowel or the movements may be too frequent but true constipation or diarrhea is rarely noted. The patient refers to the frequent visits to the toilet as diarrhea. The difficulty partially or completely to relieve their discomfort following a bowel movement is referred to as



constipation. In the strict sense of the word their trouble more closely resembles a dysenteric type of disturbance.

*Alteration of normal bowel habit with or without an upper gastrointestinal disturbance:* In this instance the term is more or less self-explanatory. Consciousness of the rectum and alteration of bowel habit are so closely related that in many instances it is very difficult to regard them as separate complaints. A recent improvement in the regularity of defecation should bear the same significance as if the normal bowel habit was replaced by constipation. It is the "alteration of that which is considered normal to the individual" that is important. Alteration of bowel habit which persists should warrant a complete investigation of the lower bowel. Disturbed function of the lower bowel is a commonplace disorder in this day of cathartic abuse or misuse, self medication and the use of enemas.

A lesion of the rectum may first become manifest by disturbances produced in other organs such as the stomach and colon. Disturbance of function of the upper intestinal tract becomes manifest as the lesion in the rectum progresses in size and extent. Distress such as upper abdominal fullness, mild dyspepsia, bloating and the tendency to form gas, will likewise increase in the presence of a lesion in the rectum. The disturbance of function of the rectum will often produce low grade intestinal symptoms similar to that described as "the irritable bowel syndrome." This accounts for the fact that many of these lesions are diagnosed by the gastroenterologist. Lesions of the lower intestinal tract frequently produce dysfunction of the upper intestinal tract. Alteration of the normal rectal habit will interfere with the function of the colon. Distention and abdominal discomfort result from such dysfunction.

*Aggravation of anal or rectal disease:* Anal or rectal disease often exists without producing symptoms. A growth during the early stage of development may precipitate an attack of otherwise dormant rectal or anal disease. Hemorrhoids which have been without symptoms may produce marked discomfort. The disturbance of

bowel habit, the alteration of the type of stool, the infection of the growth and the congestion present are all factors in precipitating the attack. In many instances, anal infection, anal fissure, cryptitis, abscess or fistula are found to be associated lesions. This accounts for the diagnosis of benign anal disease which is made during the early stage of development of the growth. For this reason, a sigmoidoscopic examination should be performed in all cases of anal or rectal discomfort regardless of the apparent benignancy of the local lesion. It is amazing to note the number of cases of carcinoma of the rectum which are diagnosed during the late stage of development. In a series of 1,073 cases of carcinoma of the rectum, in 521 patients or approximately 50 per cent, operations had been performed for benign conditions and the malignant lesion had been overlooked.<sup>3</sup>

#### LATE SYMPTOMS

The initial symptoms are often overlooked and only when bleeding occurs does the patient realize a more serious condition exists. Bleeding is the most significant manifestation of the growth during the advanced stage of development.

*Bleeding:* The microscopic evidence of blood is considered one of the early manifestations of carcinoma of the rectum. However, the passage of mucus streaked with blood usually indicates the stage of the growth to be moderate to far advanced. As a rule, streaks of blood are interpreted by the patient as being of hemorrhoidal origin and nothing serious is made of the condition. Many factors such as the vascularity of the growth, the degree of fixation and the extent to which the growth has penetrated the bowel wall will determine the degree of bleeding. Thus, the type of growth will largely determine the amount of bleeding present.

*Pain:* The deficiency of sensory nerve endings in the rectum explain the lack of pain during the early stage of development of the growth. Carcinoma of the rectum is rarely associated with pain during the early stage of development unless the lesion is situated sufficiently low to involve the anal canal.

Pain may indicate the lesion to be of the penetrating type, and to have perforated beyond the confines of the bowel wall. Again, pain from obstruction is usually referred to as being up inside the rectum or in the median line of the lower abdominal region. Furthermore, pain is associated with metastasis to the bones of the pelvis or with fixation from extensive infiltration of the growth.

*Constipation and diarrhea:* Such terms mentioned by the patient do not represent the true nature of the condition. A diarrheal stool has been defined as copious, watery, usually free of blood, and following evacuation relief of the lower abdominal discomfort is noted. However, the frequency and urgency of evacuation, the presence of a somewhat formed stool accompanied by a large amount of mucoid secretion which may be streaked with blood, and the persistence of griping or tenesmus following evacuation is more suggestive of a dysenteric disturbance. It is important to realize that the patient considers any difficulty in getting the bowels to move as constipation, whereas, frequency or urgency of bowel movement more than the usual amount is referred to as diarrhea.

The mechanical obstruction produced by the growth together with spasm of the bowel in the region of the growth produces symptoms of obstruction. The accumulation of stool above the lesion often produces excessive peristalsis of the bowel. The discomfort is usually interpreted as being painful and cramp-like in character. Marked constipation or diarrhea is noted during the stage of development in which obstruction is present.

*Frequency of urination:* A disturbance of normal urinary function is often associated with carcinoma of the rectum. It is considered one of the late symptoms but there is one important exception to this rule. Urinary dysfunction may be a prominent symptom during the early stage of development if the lesion is situated in the anterior wall of the rectum. At first, the bladder is emptied following an evacuation of stool and at more frequent intervals than customary. Later, the desire to empty the

bladder and the bowel may be confusing; thus, the explanation for the many patients who first note the undue frequency with which they void. Later, the act of voiding is followed by a discharge from the rectum. The nerve supply of the rectum and bladder is so closely related that a disturbance in one very often produces alteration of function in the other.

#### DIAGNOSIS

*Digital examination:* The diagnosis of carcinoma of the rectum depends upon a digital examination and a proctosigmoidoscopic survey. Approximately 75 per cent of carcinomas of the colon can be visualized following a sigmoidoscopic examination.<sup>3</sup> Many observers agree that most carcinomas of the rectum can be palpated following a digital examination. Approximately 80 to 90 per cent of carcinomas of the rectum are noted on digital examination. Such a statement is probably correct but it should be further modified, for it refers to those cases in which the growth is in the advanced stage of development. I have been unable to obtain any statistics as to the relative efficiency of a digital examination in the diagnosis of carcinoma of the rectum during the early stage of development. If statistics revealing the accuracy of a digital examination to establish a diagnosis during the early stage of development were available they would be surprisingly low. It is unnecessary to wait for a lesion to progress to meet the finger of the examiner when methods are available to diagnose the growth during the early stage of development. An endoscopic examination of the rectum should supply the necessary information.

A digital examination should enable the examiner to determine the location of the growth. Thus, the instrument can be inserted in such a manner as to avoid unnecessary trauma or injury to the growth. Following a digital examination the degree of mobility of the growth can be estimated. By gentle manipulation with the finger, the points of fixation can be determined. Important data are obtained following a digital examination but this is negligible as compared to the information derived following an endoscopic examination.

## ENDOSCOPIC EXAMINATION

An endoscopic survey is important because of the information obtained with reference to the general characteristics of the growth. The size, location, the degree of fixation and obstruction are important factors to be determined.

*Gross characteristics:* The appearance of the lesion will depend upon the type of carcinoma present. From an endoscopic examination there are five general groups in which carcinoma of the rectum can be classified: (1) polypoid; (2) cauliflower; (3) crater ulcer (ulcerative); (4) annular; (5) stricture.

It is not infrequent that a large protuberant growth is still localized to the mucosa and submucosa. On the other hand, a small ulcerating crater-like lesion may have penetrated into the perirectal tissue. A traditional classification of carcinoma of the rectum into protuberant and ulcerative has existed. Such classification is misleading, as it suggests the growths to be different types. Ulceration of a growth is due to interference of the blood supply and to local sepsis. An ulcerating growth suggests that penetration has occurred into the muscular layer. The pit of the ulcer is often opposite the point of greatest infiltration. In general, it is agreed that tumors projecting into the lumen of the bowel are not associated with infiltration of the external layers of the bowel wall. Again, it is true that excavated, penetrating, ulcerative lesions usually indicate extension into the external layers of the bowel wall. From the gross appearance of a lesion it is possible to determine if the extension of the growth is by expansion rather than by invasion.

*Location of the growth:* It is of value to determine the area of the bowel which is involved. It may be limited to one wall or encircle the bowel completely. The extent to which the circumference of the bowel is involved is important. A growth that involves only one wall of the bowel is considered an early one. Carcinoma of the rectum usually extends more rapidly in the circumference of the bowel than in the longitudinal direction. Frequently a growth extends the entire circumference of the bowel and it

may not have progressed more than an inch or so in the direction of the long axis. Such is the so-called annular or napkin ring type of lesion.

The location of the growth in relation to the adjacent structures should be determined. A lesion may be in a favorable position for the application of radium. Such should be considered before treatment is outlined. The position of a lesion with relation to the reflection of the peritoneum is of value. It is important to remember that lesions involving the anterior wall of the rectum are in close relationship with the bladder and at this point the peritoneum extends far down into the pelvis. Likewise, it is of value to determine the distance of the growth above the anus. From such information the type of operation as well as the approach can be determined.

*Size and extent of lesion:* The size of a growth does not necessarily indicate its duration or extent. There is no constant relationship between the extent of surface growth and the depth of extension by infiltration. Protuberant growths may completely encircle the rectum and still be limited to the mucosa and submucosa. The extent of the growth along the longitudinal axis of the bowel should be determined before certain types of posterior excision are attempted.

*Degree of obstruction:* The degree of obstruction is most accurately determined by examining the size of the lumen of the bowel in the region of the growth. Such will afford the most accurate information as to the degree of obstruction. A large growth in the ampulla of the rectum may produce very little obstruction, whereas, a small growth in the region of the recto-sigmoid may produce marked obstruction.

*Degree of fixation:* A growth of the rectum may be classified according to the degree of mobility such as: (1) freely movable; (2) limitation of motion; (3) motion is definitely limited; (4) fixed.

The degree of fixation of the growth will determine the advisability of operation and the type to be performed. A growth high in the rectum is difficult to examine with the finger. In such, it is impossible

to determine the degree of mobility without direct endoscopic examination.

The growth can be moved from side to side when examined by the finger. From such information it is considered movable, whereas the bowel wall along the base of the growth is fixed. The examiner is not interested in the degree of mobility of the growth which protrudes into the lumen of the bowel but he is concerned with the degree of fixation of the wall of the bowel in the region of the growth. Thus, information obtained following a digital examination refers largely to that portion of the growth that projects into the lumen of the bowel. The mobility of the wall of the bowel in the region of the growth is the most important factor to be determined. Such information can only be satisfactorily obtained following an endoscopic examination. The extent to which the bowel wall is fixed in the region of the growth does not necessarily indicate that infiltration is of a neoplastic nature. An inflammatory reaction may appear to be an extension of the malignant process.

#### GRADING OF MALIGNANCY

This has been considered an important factor in determining prognosis and treatment. Some individuals suggest palliative irradiation in preference to radical surgery if the growth is a high grade of malignancy such as the grade IV group, according to the classification of Broders. Jones is opposed to this idea and suggested that grading of carcinoma of the rectum is excellent from an academic viewpoint, but "I am distinctly opposed to guiding the therapeutic effect merely on a pathologist's statement that this is a grade so and so."<sup>5</sup> It seems that grading of carcinoma of the rectum does occupy a place of significance. Its position is somewhere between the extremes of conservatism and radicalism.

#### DIFFERENTIAL DIAGNOSIS

In the strict sense of the word there is no differential diagnosis of carcinoma of the rectum. Lesions of the rectum which persist should be considered malignant until microscopic examination of the several specimens of tissue removed are reported benign. There is no accurate method of ex-

cluding a malignant lesion unless several specimens of tissue removed during the endoscopic examination have been reported non-malignant. Benign and malignant lesions of the rectum shrewdly masquerade so that a diagnosis obtained following a digital and gross examination can only represent per cent of certainty. Rectal endoscopy affords an excellent opportunity to study the gross characteristics of the lesion and it enables a specimen of tissue to be removed for pathologic study in order to establish a correct diagnosis.

*Barium enema:* An enema consisting of barium is of no value in the diagnosis of carcinoma of the rectum. In fact, it has no place as a method of diagnosis in such cases. It is unnecessary to depend upon a contrast or indirect method to establish a diagnosis when direct examination is so readily available. A sigmoidoscopic examination should be completed in all patients before a barium enema is to be administered. Such will avoid many of the impactions and acute obstructions which follow the colonic administration of barium to patients with obstructing lesions of the sigmoid and rectum.

#### SUMMARY

(1) Any alteration of normal bowel habit or consciousness of the lower bowel which persists should warrant a complete investigation of the colon, rectum and anus. These symptoms are often the manifestations of a carcinoma of the rectum during the early stage of development. Symptoms such as bleeding, pain, constipation, diarrhea and frequency of urination are usually associated with the growth during the advanced stage of development.

(2) The improvement of technic of examination and the more widespread use of the sigmoidoscope are the most significant factors accounting for the greater number of cases diagnosed during the early stage of development.

(3) Approximately 80 to 90 per cent of carcinomas of the rectum are noted on digital examination. This statement is probably correct but it refers to cases in the advanced stage of development. If statistics revealing the accuracy of a digital

examination to establish a diagnosis during the early stage of development were available they would be surprisingly low.

(4) Important data are obtained following a digital examination but this is negligible compared to the information derived following an endoscopic study. An endoscopic examination is far more important because of the information obtained with reference to the general characteristics of the growth. The size, location, the degree of fixation and obstruction are important factors which are determined.

(5) Information obtained following a digital examination refers to the mobility of that portion of the growth which protrudes into the lumen of the bowel. The mobility of the wall of the bowel in the region of the growth is the most important factor to be determined. Such information can only be satisfactorily obtained following an endoscopic examination.

(6) Any chronic lesion of the rectum should be considered malignant until several specimens of tissue removed for microscopic examination are reported non-malignant. An enema consisting of barium is of no value in the diagnosis of a carcinoma of the rectum.

(7) Anal or rectal disease often exists without producing symptoms. In many instances a growth during the early stage of development may precipitate an attack of otherwise dormant anorectal disease. This accounts for the diagnosis of benign anal disease which is made during the early stage of development of the growth. For this reason, a sigmoidoscopic examination should be performed in all cases of anal or rectal discomfort regardless of the apparent benignancy of the local lesion.

#### REFERENCES

1. Rankin, F. W.: The curability of cancer of the colon, rectosigmoid and rectum, *J. A. M. A.*, 101:491, 1933.
2. Bacon, H. W.: *Anus, Rectum and Sigmoid Colon*. J. P. Lippincott & Company, 1938.
3. Buie, L. A.: *Practical Proctology*. W. B. Saunders, 1936.
4. Rankin, F. W.: Personal Communication.
5. Jones, T. E.: Surgical treatment of diseases of the colon, *N. Y. State J. Med.*, 39:60, 1939.

#### DISCUSSION

Dr. Rawley M. Penick, Jr. (New Orleans): I would like to congratulate Dr. Hébert on his choice of this subject, which touches on some phases of a

most important problem before the medical profession today. The magnitude of this problem is attested by recent contentions that carcinoma of the rectum and colon occur about as frequently as gastric carcinoma. We know that 600,000 people have died during the last 15 years from the latter. Therefore, it is difficult to overemphasize our responsibility in this matter.

It has long been obvious that early recognition and early treatment constitute the only hope for the patient with carcinoma of the rectum. The first problem, therefore, is education of the doctor who sees the patient first. He will have to revise many of his ideas about diagnosis because we have taught and depended too much on the criteria of advanced lesions. A better understanding of suspicious symptoms and the increased use of the endoscope have revealed that these cases can be diagnosed early. Dr. Hébert has admirably outlined management which, if followed, will allow diagnosis and treatment before the malignancy has progressed to a hopeless stage.

Another method of attacking this problem is in educating the public, a much more difficult undertaking. Here we are faced with the difficulty of getting the right information to the public through the proper channels. On the other hand, such educational campaigns are not without danger because they sometimes make people too conscious of cancer, and cancer phobia results. I have had an opportunity to see this result in an area where the late Dr. Bloodgood carried on a campaign aimed at informing the general public on carcinoma of the breast. No doubt much good was accomplished, but I saw many whose peace of mind was disturbed by this knowledge.

Dr. M. H. Foster (Alexandria): Appreciating as I do the reference made by Dr. Hébert to associated rectal and bladder symptoms in neoplasm of the rectum, I would like to refer briefly to two cases which represent what he has referred to.

The first case is one that while rather late, was a primary bladder neoplasm. The man was referred with a diagnosis of urinary tuberculosis. (Showing specimen) Over here is the rupture occurring into the rectum. The patient died with hemorrhage and I do not know whether the hemorrhage was rectal or vesical. The clinical manifestations on admission were those of septic urinary infection.

The second patient was a lady 63 years old who came into the hospital and the surgeon desired to repair a rectovaginal fistula. Urologic examination was called for because of passage of fecal material into the bladder. I recognized the case as one I had discharged six years before with bladder disease but had not seen since. Though examination was required, repair of the fistula was out of the question. The patient had to be dismissed without operation, and died a few weeks subsequently.

I refer to these things in the hope that it may lead the general practitioner and surgeon to recognize symptoms earlier and more accurately.

## GASTROSCOPY IN SURGERY\*

DONOVAN C. BROWNE, M. D.†  
NEW ORLEANS

Since the establishment of specialties there has been a cooperative relationship of those concerned with benefit to the profession as a whole. By far, the most closely united are the internist and surgeon. Frequently, in surgery there is a medical consultant to give an opinion in the cardiovascular operative risk; often postoperative help is desirable. Now, with the advance of gastroscopy from an academic to a practical procedure, the surgeon and gastroscopist join in a close cooperation to establish more accurate diagnosis, determine operability of a lesion and obtain prognostic information.

It is well appreciated that in gastric disease, symptoms, signs, laboratory procedures and roentgenologic findings give only presumptive evidence. Gastritis, in addition to other symptomatology, can bleed to simulate an ulcer or malignancy and the most refined x-ray technic often gives a normal film. Foreign bodies may suggest tumors. Secondary changes about an ulcer, such as edema and inflammatory reaction, can give obstructive symptoms, clinical and roentgenologic diagnosis of malignancy. It is, therefore, apparent that gastroscopy is certainly desirable as a further investigative procedure in any case of doubtful gastric pathology.

The gastroscopist is not competing with exploratory laparotomy but is supplementing roentgen, laboratory and physical examinations in gathering diagnostic and prognostic information. Accurate diagnosis, within reasonable limitations, is ren-

dered available. The apparently benign lesion can be observed in its response to a medical regimen, eliminating the possibility of error that exists in following the progress clinically or roentgenologically. The extensiveness and type of neoplastic involvement will indicate the advisability of surgery and the ultimate prognosis. Surgical indications and contraindications become more apparent. Preoperatively, the surgeon is aided in determining operability and in formulating an opinion of what should be done and how extensive a procedure is indicated. The morbidity and mortality of exploratory laparotomy for inoperable gastric carcinoma may, in the future, by more intensive gastroscopy, be minimized; the useless exploratory operation in the gastritides may be avoided.

Our experience and knowledge in gastroscopy in the past two years, has, in a great measure, been due to the increasing interest and cooperation of the surgical and roentgenologic staff. The x-ray department, in cooperative spirit, has suggested the procedure in cases in which they felt there was reasonable doubt as to the diagnosis. During this period, I have had the advantage of examining a case illustrative of every lesion of common interest to the internist, surgeon and roentgenologist. Briefly, these pathologic gastric lesions are:

### GASTRIC ULCER

It is not possible to see all gastric ulcers gastroscopically but many ulcerations not demonstrable by other methods may be seen and information, not otherwise obtainable, is available. A clean based, sharply delineated, margined ulcer is judged benign in contrast to the dirty based ulcer with a nodular margin which is typically malignant. Complete epithelization can be observed in the successful medical management of a benign ulcer. X-ray evidence of such disappearance does not always mean complete healing; mucus may fill the crater; a small crater may not be demonstrable.

The definite benignancy of a lesion and its proved complete response to a medical regimen eliminates the need of surgery.

\*Read before The Orleans Parish Medical Society, October 9, 1939.

†From the Department of Medicine, School of Medicine, Tulane University, and the Department of Gastroenterology, Touro Infirmary, New Orleans.

When surgery is imperative because of failure of medical treatment, danger of hemorrhage or malignant change, the site, the number of lesions, the amount and character of the so frequently associated gastritis may affect the decision. Good results are not to be expected from excision in the presence of severe generalized hypertrophic gastritis; even extensive resection may leave areas of gastritis to render the surgical result problematic. Therefore, the location of the lesion and the gastritis present are of great importance to the surgeon that he may decide the type and extensiveness of his operation.

#### THE STOMACH AFTER OPERATION

After gastroenterostomy or resection the gastric deformity is so great as to render its study difficult. Jejunal ulcers are often missed by both roentgenographic and gastroscopic examination. The stoma can be determined to be patent on fluoroscopy. In addition to patency, by gastroscopy, the very important rhythmic function is observed, the degree of gastric distortion determined and physiologic value of the surgery evaluated. Whether gastritis, enterostomy ulcer, reactivated duodenal ulcer, or malfunctioning stoma is causing symptoms is apparent by visualization. If the lesion is a marginal ulcer in a resected stomach the "ulcer diathesis" should be considered very carefully before risking further elective operative intervention. A marginal ulcer in an enterostomized stomach where the acidity is essentially normal seems to indicate also the patient's "tissue sensitivity," and certainly a medical regimen is more acceptable to closing the enterostomy or doing a resection. A stomach negative to x-ray and gastroscopy, with an artificial opening showing normal physiology, is supportive of psychic etiology which makes one hesitant to advocate any radical procedure. Atypical or improper action of a stoma may cause a superficial or more severe gastritis, in which event closure of the stoma is probably best advocated, for gastritis has not been observed when there is a physiologically behaving stoma. Multiple ulcers, in addition to or apart from a marginal ulcer, have been observed; their multiplicity contrain-

dicates surgery, for such patients often do best under a medical regimen. I have not seen silk sutures at the enterostomy. Schindler has seen numerous cases and advocates surgical correction. Schindler's study of postoperative cases supports placing the gastroenterostomy on the posterior wall as near the pylorus as possible to obtain best physiologic function.

#### DUODENAL ULCER

Gastroscopic study of duodenal lesions is not possible. From the viewpoint of this paper, however, a surgical procedure may be contemplated in an instance of hemorrhage in a patient in whom a duodenal ulcer is known to exist. Gastroscopy is indicated in such cases, for too frequently not the old duodenal ulcer but a new gastric lesion is the source of bleeding. The various gastritides and superficial ulcerations are frequent accompaniments to a duodenal ulcer.

#### MISCELLANEOUS AND OTHER CONDITIONS

*Gastritis:* The gastritides varying from the simple superficial type to the most severe hypertrophic erosive variety may simulate, in their non-specific manifestations, any syndrome of gastric pathology. These lesions are rarely roentgenologically demonstrable and for this reason surgical exploratory has been, in the past, frequently the useless procedure in store for the sufferer. This type of pathology is readily diagnosable on gastroscopy.

*Benign Tumors:* Such lesions, if less than two centimeters in diameter, are likely to be missed in roentgenograms. Their location, general appearance, base and the gastric mucosa about the base form the basis for establishing their benignancy. If judged benign, operability is nevertheless the most important purpose of the examination for they are likely to become malignant.

*Foreign Bodies:* Bezoars and concretions have been observed to confirm the need for operative removal.

*Pyloric Obstruction:* This pathology is considered surgical and rightly so. However, the cause of the obstruction, preoperatively, is of more than ordinary interest to surgeon and internist. The most re-

finer roentgenologic delineation often is to no avail in differentiation between benign and malignant obstruction. With gastroscopy the answer is more frequently available. An obstructing ulcer of the pyloric channel is not seen gastroscopically, the pylorus remains hidden from view. If a tumor is the source of obstruction it can easily be visualized with gastroscopy.

In the event that no tumor is demonstrated a medical regimen is an acceptable plan, or if surgery is imperative and the patient's operable state is poor it will be comforting to all concerned to be able to plan on doing merely a gastroenterostomy.

*Hour-glass Stomach:* Spastic narrowing of the stomach, often seen roentgenologically, simulating an hour-glass stomach, disappears on gastroscopy. I have seen one instance of stomach narrowing which persisted on gastroscoping the patient; the endoscopic picture strongly suggested linitis plastica. The Wassermann was negative. On luetic therapy, however, the gastric outline became normal to x-ray and scope. Information on this type of lesion is inadequate. I do not have a statement to offer to govern a decision on the surgical aspects of this pathology, but feel reservation should be practiced.

*Gastric Carcinoma:* Although I have done gastroscopies on numerous persons with gastric malignancy, I have not yet demonstrated an instance that could be titled an "early" diagnosis. Routine gastroscopy in the dyspeptic would be the greatest aid in establishing an "early" diagnosis. Besides early diagnosis, which is the first wish of gastroscopy, the accurate diagnosis is most important and then the operability. The type of carcinoma gastroscopically is classified by Schindler as: I. broad based, well limited polyp; II. ulceration sharply limited; III. ulceration only partially limited; IV. diffuse infiltrating carcinoma. The extent of involvement of the gastric wall determines the operability; an accurate measurement of this infiltration as seen endoscopically can be made, thus rendering valuable information.

*Phantom Tumor:* Allergic phenomena,

such as recorded by Cardier and Chevalier, open a great field for investigation; as yet not sufficient data are available to justify conclusions.

#### CASE REPORTS

The following cases are interesting illustrations from a series of gastroscopies done on patients seen in conjunction with the surgical department. They were selected for this paper for each patient had a significant lesion over which the advisability of surgery was debated. Limitation of time confines the report to five cases:

##### CASE NO. 1

H. C. W., a 64 year old railroad conductor, for fifteen years had had a moderate degree of ill-defined dyspepsia; for six months he had experienced epigastric pain immediately upon eating; during the past four months he had suffered quantitative dyspepsia and occasions of vomiting. Weight loss of approximately eight pounds in four months. The physical examination revealed a palpable, firm, mobile, epigastric mass of approximately 3 x 4 centimeters.

Laboratory findings: Red blood cells 4,300,000; hemoglobin 80. Stool, positive for occult blood. Gastric analysis revealed an achlorhydria. The Wassermann was negative.

Roentgenologic opinion: "The stomach presents on the lesser curvature in vicinity of the incisura angularis an ulcer crater 7.0 mm. in diameter at the base and 5.0 mm. in depth, some rigidity of the gastric wall on the lesser curvature side circumferential to the ulcer, but it is believed that a persistent annular contraction of the stomach in this area is due to spasm rather than to tumor. Whether the lack of flexibility in the gastric wall in the immediate vicinity of the ulcer crater represents neoplasia or inflammatory tissue cannot be definitely determined at this time." No six hour retention.

Gastroscopic examination: Gastric aspiration prior to examination revealed fresh blood. The pyloric antrum was easily visualized; the pylorus was blocked by edema with associated spasm. On the anterior wall, near the greater curvature an ulceration was visible. The margins were sharp, floor was white (fibrin), adjacent mucosal folds were inflamed and swollen, edematous appearance. A second ulceration, showing evidence of penetration, was seen on the lesser curvature. The edges, again, were crater-like and active bleeding was noted. The surrounding mucosa was markedly swollen and inflamed. Diagnosis: Gastric ulcers with associated gastritis and edema.

Clinical course: Gastric resection was successfully performed. The postoperative period was hectic, complicated by pneumonitis and toxic psychosis. The lesion appeared benign; this was confirmed by the pathologist's study of serial sec-



tions. This gross tissue corresponded in detail to the gastroscopic picture.

## COMMENT

Clinically, this might be an instance of advanced gastric carcinoma. Roentgenologically, there was possible benignancy indicated. Gastroscopically, the lesion was benign. Because of the patient's age and inability to follow the case properly, resection was decided upon. This patient probably should have been placed on a medical regimen and kept under observation gastroscopically. Thereby, surgery may have been avoided.

## CASE NO. 2

W. D. S., a 48 year old physician who at 25 had a duodenal ulcer for relief of which a posterior gastroenterostomy was done ten years later by Dr. Will Mayo. He was asymptomatic until three months prior to this study, at which time he had a recurrence of constant epigastric pain, melena, nausea and vomiting.

Physical examination: There was marked pallor and dehydration but no clinical shock. Cardiac findings of mitral stenosis. Epigastric tenderness and rigidity but no demonstrable tumor.

Laboratory findings: Red blood cells 3,900,000; hemoglobin 70. The stool was positive for occult blood. Gastric analysis showed 17 units free acid and 32 units total acid.

Roentgenologic opinion: "A number two retention, gastroenterostomized stomach; the stoma functions poorly. An obstructive lesion involving the stoma is suggestive of ulcer or malignancy. Filling defect first portion duodenum due to an old ulcer. Retention in a gastroenterostomized stomach is very unusual and is either due to a new growth or an ulcer causing edema at the stoma."

Gastroscopic examination: The pyloric antrum quickly came in view but remained closed and fixed; sluggish peristalsis did not alter its contour. On the posterior wall in the pars media the stoma was seen. The dependent margin was tremendously swollen and inflamed, almost occluding the entire stoma. Normal jejunal mucosa was seen deep at the upper angle; on the lower margin several small ulcers with white bases were noted but the proximal half of the margin appears denuded; raw and active bleeding was seen. Further examination revealed normal mucosa elsewhere. Diagnosis: Marginal ulcer with active hemorrhage.

Clinical course: Under medical treatment the patient became asymptomatic, returned to practice and, now, six months later, is free of symptoms.

## COMMENT

Gastroscopy here demonstrated benignancy reassuring patient and physician,

permitted rational therapy and brought about a good medical response.

## CASE NO. 3

T. E. S., a 63 year old business man, complaining of epigastric pain (postprandial) of seven months' duration, the onset being subsequent to a spree of eating persimmons. Three months prior an x-ray diagnosis of gastric ulcer was made; there was no response to diet and alkali. There was a weight loss of twenty pounds.

Physical examination: A chronically ill male showed advanced senile changes and evidence of weight loss. There was epigastric tenderness but no other finding of significance.

Laboratory findings: Red blood cells 4,600,000; hemoglobin 90. The stool was negative for occult blood. Gastric analysis revealed 58 units free hydrochloric acid and 78 units total acidity. The Wassermann was negative.

Roentgenologic opinion: "Within the stomach is seen an oval filling defect approximately 5 x 4½ cm. in diameter. This corresponds to a mass which is mobile. While a tumor having an unusually large pedicle might be considered, the findings, as a whole, suggest a bezoar."

Gastroscopic examination: The scope was passed to the third position to start the examination. On reaching the pars media, a brownish-black mass was observed half submerged in a greenish-gray mucoid pool. By movement of the scope the mass is displaced downward and as the patient's position is shifted it assumes a location adjacent to the antrum and moves with deep respiration. The mucosa at the angulus is inflamed and swollen but no ulceration is seen. Diagnosis: Bezoar.

Clinical course: A gastrotomy was successfully done, removing a phytobezoar measuring 4 x 7 cm. On the fourth postoperative day the patient developed a pulmonary infarct and expired on the eleventh postoperative day. Pneumonitis superimposed on a pulmonary infarct was the cause of death.

## COMMENT

Gastroscopy confirmed the diagnosis of phytobezoar. Three other such cases are reported in the American literature. The patient had refused surgery prior to establishment of the diagnosis by this procedure.

## CASE NO. 4

F. D. G., a 63 year old Italian farmer, had had dyspepsia of only three months' duration. His symptomatology was that of partial pyloric obstruction. There was no weight loss. The physical examination revealed an epigastric mass with visible peristaltic waves.

Laboratory findings: Red blood cells 4,900,000; hemoglobin 90. Stool, positive for occult blood. Gastric analysis: Free hydrochloric acid 8 units, total acidity 58. The Wassermann was negative.

Roentgenologic opinion: "In the pyloric segment

the lumen is narrowed to an irregular channel approximately 0.5 cm. in diameter and 6 cm. in length. The most proximal portion of this channel exhibits niche formation on both the greater and lesser curvature sides. In the most distal portion an abnormal mucous membrane pattern can be followed. The pylorus is readily patent—the involved pyloric segment appears to be fixed. While the findings suggest a scirrhus type of carcinoma, the presence of mucous membrane, even though of distorted pattern, makes it impossible to rule out a benign lesion."

**Gastroscopic examination:** Pyloric segment easily visualized was definitely fixed. Peristalsis was absent; the pylorus was seen and remained stationary; the mucosa appeared edematous and pale. Knob-like projections with necrotic tips protruded into the lumen from the lesser curvature and posterior wall. The involvement extended back over the pyloric third of the stomach, giving the general impression of hills and valleys with mucosa intact. **Diagnosis:** Scirrhus carcinoma, operable.

#### COMMENT

Gastroscopically this was a type IV gastric carcinoma usually considered inoperable. In this instance gastroscopy removed any doubt as to the nature of the lesion. Because of the limitation of the involvement to the pyloric third, resection was decided upon.

#### CASE NO. 5

A. M. is a 48 year old farmer, whose symptomatology dated back six months with the onset of epigastric pain, postprandial, with relief from alkali. The physical examination was essentially negative.

**Laboratory findings:** Red blood cells 4,700,000; hemoglobin 85. Gastric analysis: 25 units free hydrochloric acid; 45 units total acid. The Wassermann was negative. Urine and stool, normal.

**Roentgenologic opinion:** "Multiple large filling defects apparently involving the entire stomach. The largest are noted in the body of the stomach and in the pyloric segment. Active peristalsis traverses the entire stomach with the exception of the pyloric segment. The impression is that of a polypoid hyperplasia of the gastric mucosa with questionable malignant degeneration in the region of the pylorus."

**Gastroscopic findings:** Patient experienced some discomfort on distention of stomach. The angulus and antrum were visualized; the pylorus opened and closed but no sharp peristaltic waves were noted. The mucosa from the antrum to within 5 cm. of cardia was thrown into huge, inflamed, edematous folds with superficial ulcerations occasionally encountered; the mucosal folds in areas projected into the lumen and appeared polypoid with broad bases. Smaller red nodules were seen; grayish exudate was irregularly distributed be-

tween folds. **Diagnosis:** Superficial ulcerative gastritis; hyperplasia with polypoid formations, non-malignant at this time.

**Clinical course:** Because of the generalized involvement, gastric resection was considered inadvisable. Under a medical regimen the patient became asymptomatic but repeated gastroscopy showed no essential change.

#### COMMENT

The unusual picture presented in this case has prompted careful observation. Realizing the hazard which might be encountered surgically, the failure to show gastroscopic improvement, despite symptomatic relief, places this patient in the surgical group with poor prognosis.

#### CONCLUSION

Gastroscopy is a valuable supplementary diagnostic agent in the complete study of the patient suffering from diseases and disorders of the stomach. The value of this diagnostic procedure may be judged from the five cases reported in this paper.

#### BIBLIOGRAPHY

- Benedict, E. B.: Importance of gastroscopy in surgical diagnosis, *Am. J. Surg.*, 40:5, 1938.  
 Browne, D. C. and McHardy, G.: Gastroscopy and the diophytobezoar, *Arch. Int. Med.* (In press).  
 Carey, J. B.: Gastroscopic observation of the postoperative stomach, *Surg. Gynec. & Obst.*, 65:447, 1937.  
 Cheney, G.: Review of gastroenterology, *Arch. Int. Med.*, 60:705, 1937.  
 MacCarty, W. C.: Why cancer is not recognized early, *Am. J. Cancer*, 22:831, 1934.  
 Moersch, H. J. and Walters, W.: Phytobezoar with visualization by means of gastroscopy, *Am. J. Digest. Dis.*, 3:15, 1936.  
 Pratt, G. H.: Cancer of the stomach, *Arch. Surg.*, 33:138, 1936.  
 Schindler, R. and Giere, N.: Gastric surgery and gastroscopy, *Arch. Surg.*, 35:712, 1937.  
 Schindler, R.: The value of gastroscopy in diagnosis and surgical treatment of chronic gastro-duodenal ulcer, *Surg.*, 2:692, 1937.

#### DISCUSSION

Dr. Alton Ochsner (New Orleans): Any visual diagnostic measure has value. Gastroscopy is one. I think Dr. Browne in his presentation has demonstrated what can be accomplished by this diagnostic method. I am glad he has emphasized the importance of gastroscopy in gastric hemorrhage. There is nothing more disconcerting than to operate upon a patient with hemorrhage and find nothing but a widespread gastritis. We can now tell where the hemorrhage is coming from and what the lesions are.

Gastroscopy is of value in many cases of ulceration and malignant disease. Unfortunately, the gastroscope cannot always distinguish between a malignant and a benign lesion. There are certain rather classical manifestations but the final analysis can be made only with a microscopic section.

One has only to see Dr. Browne do this procedure, the ease and deft way he passes the gastroscope and see what one can visualize in the stomach to realize fully the possibility of this instrument of precision.

Dr. A. L. Levin (New Orleans): Gastroscopy, the non-surgical procedure of objectively exploring the interior of the stomach, has within the short space of five years been established and accepted throughout the world.

My remarks are from personal observation of 120 patients whom I have gastroscoped at Charity Hospital. We have simplified the technic, gained confidence in the instrument, obtained great satisfaction from its use and application, and can cheerfully recommend it to both internist and surgeon, as a safe, simple and very valuable method to bring us closer to the solution of our difficult diagnostic gastric problems. The following case report will elucidate most satisfactorily our points of contention:

A male patient above middle age was the victim of abdominal pain and its allied symptoms for over a year. There was complete disability from work on account of weakness, loss of weight and insomnia for months. He made the rounds of physicians' offices and an x-ray of the gastrointestinal tract was finally made, revealing the existence of a gastric ulcer on lesser curvature. The patient was put to bed for four weeks and fed on milk and powders with no relief of symptoms whatsoever. I was asked to make a gastroscopic examination and observed the following: A marked hypertrophy and induration of the entire antral mucosa; the pylorus was partially blocked by the indurated mucosa; loss of sphincteric function, superficial erosions, marked anemia and in the pre-antral area I observed an indurated ulceration bearing all the earmarks of malignancy. The gastroscopic opinion was "gastric carcinoma of antrum." Immediate surgical intervention was advised. The operability was determined by the fact that from about the middle of the stomach towards the cardia, the mucosa looked nearer normal. A resection was done by Dr. Alton Ochsner; the patient recovered and is well today.

I have observed several such diagnostic errors. It must be remembered that the radiologist can only see on the radiogram a niche, a punched out area or a deformity. He cannot differentiate between a malignant or benign or a benign deformity resulting from adhesions. The objective and the ocular of the gastroscope and the well-trained eye of the gastroscopist can recognize many lesions which cannot possibly be detected by the most expert radiologist. We have observed numerous cases of submucosal hemorrhages, superficial ulcers, multiple superficial ulcers; superficial, hypertrophic, atrophic, and postoperative gastritis. A number of such patients were chronic sufferers, some with a typical history of ulcer. The x-ray

report, however, read "no lesions or pathology found." The gastroscopist and radiologist must collaborate and no Class 'A' hospital today can be considered complete without a gastroscopic service. True, the gastroscope still has deficiencies. We cannot always discover every bleeding spot or every ulcer, but I prefer to lay the blame often on the lack of essentials necessary for a perfect examination, namely, the proper table, trained assistants, position of patient and a dark room.

And now, I can easily discuss the value and merit of this method to the surgeon. A surgeon who does gastric surgery for ulcer, malignancy, exploratory, or pyloric obstruction, will positively benefit greatly by preoperative gastroscopic examination. He should not operate on a stomach involved in gastritis, atrophic or hypertrophic, or when submucosal hemorrhages are present, or multiple areas of hyperemia and superficial erosions. A gastroenterostomy in chronic gastritis tissue will reduce the patient to a life of misery and suffering. I have examined several such persons. Gastric surgery cannot be successful if the field of operation is pathologic. Finsterer's idea of gastrectomy for peptic ulcer is based on the above contention.

While on this subject of discussion, I wish to relate a most interesting case. I was called to do a gastroscopy on a patient at Charity Hospital with a history very suspicious of malignancy. The gastroscopic view was most interesting; the entire antrum and pre-antral area was edematous, indurated, covered with purulent material, and in the center of it was a large deep ulcer, the base of which was of a deep brown color and the edges looked like cauliflower masses. My opinion was "a large carcinomatous ulcer." Exploratory revealed a large perforated ulcer on anterior wall adherent to the under surface of the liver; the base of the ulcer seen by us was liver tissue. Gastric resection was done. The patient developed general peritonitis and died. Autopsy revealed a large phytobezoar in the fornix, firmly adherent and hidden from the eyes of both gastroscopist and surgeon.

Time does not permit me to dwell longer on this most important subject. Suffice it to conclude with a firm conviction that chronic gastric disease deserves the attention of the gastroenterologist, radiologist, gastroscopist and surgeon.

Dr. Daniel N. Silverman (New Orleans): I am not here to dampen the enthusiasm in regard to gastroscopy; it is a valuable clinical method here to stay, but reading and listening to others concerning the diagnosis of diseases of the stomach with this method is often somewhat disconcerting. These lesions we see localized in tumor formation much to our surprise are very often not malignant. In fact at a meeting of the American Gastrological Society in May, Schindler himself reported cases where x-ray, gastroscopic and surgi-

cal methods all revealed tumor of the stomach but proved to be cases of localized gastritis.

The point of hemorrhage in the stomach mucous membrane brings back a statement made a quarter of a century ago; many cases of gastric hemorrhages are gastric reactions in the stomach membrane.

Dr. Ochsner brought out a very pertinent point. Those cases of hemorrhage with negative gastroscopic findings and other negative findings are not infrequently the type of lesion described many years ago by the Germans, a form of hepatic disease of early sclerosis, producing gastric hemorrhage. A very large series of studies by Bulmer was recently published in the *British Medical Journal*; out of 685 chronic cases of dyspepsia in which 146 were gastroscoped, 66 of these cases had gastritis. He states that we must get a long way from the appearance of the stomach mucosa to say that a case is one of chronic gastritis.

Dr. Donovan C. Browne (In conclusion): I appreciate very much the liberal discussions, and especially the conservative note which has been stressed. It is through this attitude that a very valuable diagnostic procedure will find its true place. I was particularly struck by Dr. Ochsner's remarks on gastric hemorrhage. Careful observations are being made along this line, and we hope to give a more comprehensive report in the near future.

---

## CHRONIC DUODENAL ILEUS

WALTER CLAYTON MCCOY  
NEW ORLEANS

Chronic duodenal ileus as a clinical entity is frequently misdiagnosed or not considered in cases of vague and obscure gastrointestinal disorders. The condition may be defined as duodenal stasis resulting from either intrinsic or extrinsic obstruction to the duodenum. In order to clarify the clinical picture of this disease, first the history of duodenal obstruction, then the etiology, and classification will be discussed; lastly, the incidence, signs, symptoms, roentgenographic findings, and diagnosis will be considered. One brief case report from the Hutchinson Memorial Clinic will be included in this study.

There are many synonyms for chronic duodenal ileus. It is variously called arteriomesenteric compression, megaduodenum, duodenal stasis, chronic intermittent duodenal obstruction, and gastromesenteric ileus.

### HISTORY OF DUODENAL OBSTRUCTION

Obstructions of the duodenum have an interesting history. The earliest article in the literature was written by Boernerus<sup>9</sup> in 1752. In 1820 Yeats<sup>53</sup> recognized the possibility that obstruction of the duodenum might be produced by the transverse colon, and he also discussed the symptomatology of this condition. Guyot,<sup>23</sup> in 1829, reported a case of congenital obstruction of the duodenum. The first American report was made by an Alabama doctor, Anderson,<sup>1</sup> in 1848. Rokitsansky,<sup>30</sup> in 1849, suggested that acute dilatation of the stomach is due to compression of the duodenum by the root of the mesentery. Bernheim-Karrer,<sup>5</sup> in 1904, was the first to describe arteriomesenteric compression as an extrinsic cause of duodenal obstruction in an infant. Ochsner<sup>41</sup> described a duodenal sphincter in the second part of the duodenum below the ampulla to which he attributed much of the duodenal pathology (1908). Ochsner's work was doubted, however, by Boothby and others<sup>30</sup>. Barker<sup>3</sup> first suggested the possibility of duodenojejunosomy as a surgical method of treatment. Bloodgood<sup>6</sup> published his report of a fatal case in 1907 and also suggested duodenojejunosomy. Stavely,<sup>47</sup> following Bloodgood's suggestion, performed a duodenojejunosomy successfully on a patient having chronic duodenal ileus in 1907, but did not publish the case till 1910. Conner<sup>17</sup> collected 102 cases of duodenal obstruction in 1907; by his experiments on cadavers he demonstrated that traction on the mesentery was capable of causing obstruction.

### ETIOLOGY OF DUODENAL OBSTRUCTION

About a score of conditions have been described which are capable of causing duodenal obstruction. By far the most frequent cause is arteriomesenteric compression. Other conditions found in the literature are: Aneurysm of the abdominal aorta; <sup>2, 43, 50</sup> inflamed lymph nodes; <sup>29</sup> tuberculous lymph glands; <sup>19, 34, 45</sup> congenital narrowing; <sup>23, 44, 48</sup> congenital atresia; <sup>18</sup> incomplete or abnormal rotation of the gut; <sup>13, 24</sup> kinking; <sup>43</sup> blood clot; <sup>43</sup> contracting simple ulcer; <sup>43</sup> accessory hepato-duodeno-colic bands; <sup>31</sup> adhesions about the gallbladder; <sup>43</sup>

peritonitis;<sup>13</sup> peritoneal bands;<sup>10, 45</sup> secondary to chronic cholecystitis with cholecystoduodenal fistula;<sup>51</sup> adenocarcinoma of the duodenum;<sup>29</sup> epidermoid carcinoma of the gallbladder with extension around the duodenum;<sup>12</sup> metastatic tumor in the second part;<sup>29</sup> carcinoma of the pancreas invading the duodenum.<sup>29</sup> Most numerous instances of obstruction are assigned to arteriomesenteric compression. This type has been described by many observers.<sup>5-7, 11, 14, 17, 20, 22, 24-26, 28-39, 42, 52</sup>

While it is readily understood how such conditions as enlarged lymph nodes, tumors, stenosis, adhesions, and other obstructions may cause duodenal stasis, perhaps a few notes on why arteriomesenteric compression causes ileus are in order. In an interesting anatomic study, Dwight<sup>21</sup> made wax casts of many duodena. The casts showed varying degrees of constriction at the end of the first, second, and notably the third portion; in the third part he usually noted a groove posteriorly from the pressure of the vertebral column and a notch anteriorly where the vessels and mesentery cross. Conner,<sup>17</sup> in a series of experiments on cadavers, demonstrated that arteriomesenteric pressure could produce obstruction. There is an increased possibility of compression in the asthenic, visceroptotic individual. Codman<sup>30</sup> believed the altered relation of the viscera occasioned by man's upright posture was a factor; he showed how the anatomic arrangement is impaired by the erect position of man. Wilkie emphasized the importance of traction on the mesentery in the visceroptotic individual with loss of the supporting fat and with defects of posture,<sup>52</sup>—all three factors tending to increase the likelihood of arteriomesenteric compression of the duodenum.

#### CLASSIFICATION OF DUODENAL OBSTRUCTIONS

There is very little agreement in the literature regarding classification. One soon gains the impression that each writer is dissatisfied with existing systems and must perforce divulge yet another new classification. Were we to restrict the term chronic duodenal ileus as resulting only from arteriomesenteric compression of the

transverse part of the duodenum by the mesentery of the small intestine and its vessels as does Jones,<sup>28</sup> all would be easy. Unfortunately for the classifiers, other conditions such as have been mentioned also give symptoms of duodenal obstruction; all conditions which may cause the stasis must be, therefore, included.

Initial division of the types of duodenal obstruction into congenital and acquired is made by Stenson<sup>48</sup> and McGehee.<sup>34</sup> Cameron<sup>13</sup> divides obstructions into those caused by intrinsic factors and those caused by extrinsic factors. Krass<sup>32</sup> has two general classes: adynamic duodenal ileus and dynamic chronic duodenal ileus; Kellogg and Kellogg<sup>31</sup> described four types of duodenal change. Judd and Puestow<sup>29</sup> list four classes, while Farrington<sup>22</sup> has six main divisions. To me, the simplest and most intelligible classification is that based on the anatomic differentiation of intrinsic lesions, such as stenosis, neoplasms affecting the duodenum; and extrinsic lesions, such as arteriomesenteric compression and adhesions.

#### INCIDENCE OF CHRONIC DUODENAL ILEUS

The incidence of chronic duodenal ileus is quite variable, but all figures agree that the disease is comparatively rare. In the years before duodenal stasis was a recognized disease entity, Perry reported 17 cases of duodenal obstruction out of 17,652 autopsies at Guy's Hospital<sup>43</sup> in the years 1826-1892. Krass found three sets of figures from different workers: One gave 15 cases of 30,000 admissions; 0.6 per cent in a second investigator's findings; and one reported 5 per cent of 1,754 patients.<sup>32</sup> From 1932 to 1940 in the Hutchinson Memorial Clinic at Tulane University, 10 out of nearly 18,000 admissions were so diagnosed. In the Charity Hospital at New Orleans, I was able to find only three cases reported in over 200,000 admissions since 1936. Shattuck and Imboden<sup>46</sup> found four times as many females as males in their series.

#### SYMPTOMS OF CHRONIC DUODENAL ILEUS

There is no one set of symptoms pathognomonic of chronic duodenal ileus. The earliest symptoms are often associated with

indefinite and periodic indigestion, with feelings of distention, rumbling, and gaseous eructations. Nervous symptoms, headache are usually present.<sup>22</sup> Anorexia may be an early complaint.<sup>35, 38</sup> So at best, the clinical picture in the early cases is vague and indefinite.

Later, there are symptoms of obstruction with intermittent bilious vomiting, which may be associated with pain about or below the umbilicus; the pain may even radiate to the flanks and simulate a Dietl's crisis.<sup>22</sup> Just as in many cases of gallbladder disease, epigastric fullness and flatulence may be observed by the patient, especially after meals.<sup>4, 30, 47, 52</sup> The abdominal pain and vomiting are fairly constant findings. There may be periodic bouts of these symptoms occurring every one to five weeks for one or two days at a time.<sup>45, 52</sup> Vomiting often relieves the pain, headache, and other symptoms.

Patients frequently date their first attack to childhood<sup>35, 38, 52</sup> and between the ages of eight and fourteen the attacks clear up and the patients are free from symptoms till some illness, pregnancy, influenza, worry, or unusual exertion occurs and the complaints reappear. Miller and Gage believe that the patients are usually free from symptoms in late childhood and adolescence, possibly due in some way to a lessening of the constriction of the duodenojejunal flexure by the growth of the child;<sup>38</sup> these authors, however, are not so clear as to why the symptoms reappear.

In one unusual case reported by Patterson,<sup>42</sup> patient found she could press from the right costal arch across upper abdominal region from right to left and could milk out the duodenal contents; she could hear the gurgling as the contents passed, and it relieved her pain.

Often patients experience relief by lying on the abdomen or in the knee-chest position.<sup>4, 28, 45, 52</sup> Some degree of nervousness is almost invariably noted; patients are often labeled neurasthenics<sup>52</sup> or psychoneurotics.<sup>4, 22, 40</sup>

#### SIGNS OF CHRONIC DUODENAL ILEUS

The signs are but little, if any, more satisfactory than the symptoms. The pa-

tients are usually visceroptotic and of an asthenic habitus.<sup>4, 34, 46, 52</sup> Occasionally splashing and gurgling may be elicited in the duodenum.<sup>38, 52</sup> Definite abdominal tenderness at, or near, the umbilicus is often noted;<sup>52</sup> reverse peristalsis in the abdomen has been described.<sup>38, 45</sup> The stomach may appear enlarged, like a blown up balloon, and palpable.<sup>6, 38</sup> The signs, therefore, may be only suggestive.

#### ROENTGENOGRAPHIC STUDIES IN CASES OF CHRONIC DUODENAL ILEUS

Roentgenographic studies in the majority of cases will reveal an enlarged duodenum; but if the patient is free from attacks, no x-ray evidence will be found.<sup>52</sup> Puddling and stasis are observed.<sup>33</sup> Reverse peristalsis may be noted in the enlarged duodenum and is considered conclusive evidence by Rowlands.<sup>45</sup> Writhing, twisting, and dilatation of the duodenum with deformity or angulation of the shadow are believed to be diagnostic by Shattuck and Imboden.<sup>46</sup> Bloom and Arens,<sup>8</sup> and Case,<sup>15</sup> however, doubt the radiographic evidence based on the criteria of Shattuck and Imboden, declaring that chronic duodenal ileus is very rare. Sturtevant recently (1939) again cast grave doubt on a roentgenographic diagnosis based on antiperistalsis, writhing duodenum, and duodenal delay; he presented two cases which showed such findings; one a case of liver necrosis, the other a case of ulcerative colitis.<sup>49</sup> Sturtevant also believed that this duodenal ileus is a very rare condition and the usual x-ray findings should be accepted with care.

#### DIAGNOSIS, COMPLICATIONS, AND DIFFERENTIAL DIAGNOSIS

The diagnosis is based on the symptoms, signs, and x-ray findings of duodenal dilatation. The only absolutely positive diagnosis is based on direct visualization after surgical exploration of the abdomen.<sup>52</sup>

Complications frequently described are gastric or duodenal ulcers;<sup>26, 27</sup> gallbladder disease may often be present.

Differential diagnosis should include gallbladder disease, peptic ulcer, recurrent appendicitis, and recurrent volvulus of the cecum; in the infant, hypertrophic pyloric stenosis should also be considered; one may include hysterical vomiting.<sup>45, 52</sup> Cholecys-

tographic studies will help differentiate gallbladder disease, but it is well to know that both conditions may be present. Roentgenographic studies of the gastrointestinal tract will eliminate or confirm, usually, the diagnosis of peptic ulcers, whether of the stomach or duodenum. Negative x-ray studies will aid in eliminating a diagnosis of chronic duodenal ileus in cases of hysterical vomiting, just as certain positive x-ray findings will aid in diagnosing congenital hypertrophic pyloric stenosis. Recurrent appendicitis may have associated systemic reactions or localizing signs to aid in differentiation. Recurrent volvulus of the cecum may be diagnosed by barium enema.

#### TREATMENT

Treatment is medical or surgical. Medical treatment, which should always be tried first, consists of various methods directed towards overcoming the stasis. Postural drainage, with elevation of the foot of the bed while sleeping, rest in a similar position for about an hour after meals are recommended.<sup>22, 30</sup> Dietetic measures, directed to increasing the body weight by a high caloric diet, are advocated.<sup>22, 30</sup> The knee-chest position, especially after meals, gives many relief. Exercises to strengthen the abdominal muscles, mineral oil with agar or cascara, mental hygiene, and the use of abdominal belts are helpful adjuncts.<sup>22, 30</sup> Miller<sup>39</sup> believes that the object of treatment is two-fold: To prevent gastric accumulation and distention by lavage; and to give easily digested food at proper intervals.

The indications for surgical treatment according to Mullen are: First, uncontrolled indigestion for many years; second, progressive loss of weight and strength; third, pronounced dilatation and stasis in the duodenum as shown by x-rays; fourth, progressive psychoneurosis which follows the onset of digestive symptoms; fifth, when the condition is found in the young, not including infancy and childhood; and sixth, whenever pain is a constant and prominent symptom.<sup>40</sup>

The type of operation which should be done depends upon what factor is responsi-

ble for the duodenal stasis. Obviously, adhesions must be treated differently from tuberculous lymph nodes; but chiefly we are concerned with relief of chronic ileus due to arteriomesenteric compression. In the latter condition the object is to short-circuit the intestinal contents about the area of obstruction. Many operations have been tried, such as suspension of the cecum, gastroenterostomy, and duodenojejunosomy. Of all operations, the one most successful is duodenojejunosomy; this operation has been described by numerous investigators.<sup>4, 19, 30, 44, 47</sup> The results seem very encouraging. Wilkie<sup>52</sup> reports on 55 cases with 23 cured, 11 improved, 12 slightly improved, and only nine with little or no improvement; he found best results when there was definite x-ray evidence of stasis. The operation, Wilkie insists, is only an incident to the treatment and suitable abdominal belts, postural, and dietetic measures should be continued. Cathey<sup>16</sup> noted that 58 duodenojejunosomies were reported up to 1921 with no operative deaths.

#### CASE REPORT

R. W., a 52-year old white female, a missionary, came to the Hutchinson Memorial Clinic on October 4, 1932, complaining of headache and a tumor in the left upper part of her abdomen. The patient began having headaches two years ago; these headaches come on two or three times a week and last about 24 hours. In the past six months she has lost 17 pounds. The patient says she does not like sweets and she avoids fried foods. If she eats fried foods, or other foods which disagree with her, she vomits within thirty minutes; she observed that the food she vomits tastes about the same way it did when she ate it. She has been constipated nearly all her life. The patient had a tumor excised from her left shoulder 14 years ago, but it recurred the next year and has grown slowly in size since then. The tumor in her abdomen began growing several years ago; she does not recall when she first observed the abdominal tumor.

The patient has been in fair health most of her life; she had the usual childhood diseases. At 12 she had typhoid fever; there were no complications. At the age of 20 she began teaching; at 30 she began doing missionary work, and for the last seven years she has been in Mexico.

Physical examination: Pulse 80, respiration 17, temperature 98.4°, blood pressure 116/68. The patient is a visceroptotic individual of asthenic habitus; weight is 126 pounds. A soft tumor, 6 x 11 x 2 centimeters, is noted on the left shoulder; another

such tumor is in the left hypochondrium and measures 6.5 centimeters in diameter; both are fixed to the subcutaneous tissue and transilluminate light poorly. Examination of the chest reveals fine rales in the left apex; the heart does not appear to be enlarged and no murmurs are heard. There are two areas of abdominal tenderness, one in the upper right quadrant over the gallbladder area and the other area of tenderness is over the sigmoid flexure.

Laboratory examinations revealed no abnormal blood or urine findings; the Wassermann reaction was negative. Stool was examined on three occasions and on one examination *Endolimax nana* was found. Gastric analysis disclosed an achlorhydria.

Roentgenographic studies of the gastrointestinal tract on October 13, 1932, revealed the following: Stomach is small and there is no demonstrable pathology. The duodenal bulb is large when relaxed; the second portion is considerably dilated, being approximately three times the average size; the mucosal folds are still preserved. In the second portion, about two inches beyond the bulb, is a projection which strongly suggests that the duodenum is pulled at this point by adhesions. Barium enema on October 20, 1932, showed a fuzzy outline in the cecum and ascending colon "very suggestive of amebic dysentery." Cholecystography (on October 19, 1932) revealed that the gallbladder was visible; however it filled poorly, the concentration was inadequate, and the radiologist believed the cholecystogram was indicative of gallbladder pathology.

Clinical course: The patient was admitted to Touro Infirmary on October 13, 1932, for observation, radiologic studies, and for the removal of the tumors. Following the x-ray work, she was operated on by Dr. Alton Ochsner (October 25, 1932) and the tumors, which proved to be lipomata, were excised under local analgesia; the patient left the hospital on the day of operation. She returned to the Hutchinson Clinic for continued treatment; the incisions healed uneventfully. In so far as her duodenal stasis was considered to be responsible to a large extent for her headaches and abdominal tenderness and for her vague gastrointestinal symptoms, the patient was advised to eat more, to sleep in a bed with the foot elevated, and to lie down for an hour after each meal. When the patient was examined on November 2, 1932, she had gained seven pounds and was having less severe headaches. She reported that she was feeling better on November 9. The patient was last seen on November 14; her incisions had healed; she complained of only occasional headaches; said she felt fine. Soon after her last visit she moved to Kentucky and no further record of her was obtained.

#### COMMENT

This patient shows concomitant gallbladder disease and duodenal stasis. The cause

for the stasis is not entirely clear, but appears to be the result of arteriomesenteric compression. The patient does not present a typical case, but the visceroptosis, the asthenic habitus, the relief of symptoms by lying with the foot of the bed elevated are fairly typical—suggestive to say the least. The roentgenographic findings, coupled with the signs and symptoms, yield the diagnosis of chronic duodenal ileus. The relief of symptoms by medical treatment is very important, and it is well to emphasize again that surgery should never be attempted till adequate medical therapy has been attempted.

#### CONCLUSIONS

1. Chronic duodenal ileus is a definite clinical entity.
2. The condition is relatively rare.
3. The commonest cause of chronic duodenal ileus is arteriomesenteric compression.
4. This disease should be considered in patients who have obscure gastrointestinal symptoms, especially when these persons are asthenic and visceroptotic.
5. No single clinical observation is diagnostic positively, except visualization at operation, but certain x-ray findings are highly suggestive.
6. Treatment is medical at first; when this fails, treatment is surgical.
7. The operation of choice in cases due to arteriomesenteric compression is duodenojejunosomy.

#### REFERENCES

1. Anderson, J. C.: Stricture of the duodenum, New Orleans M. & S. J., 5:480, 1848.
2. Baird, Lester W. and Kirklin, B. R.: Obstruction of the third portion of the duodenum of unusual etiology, Radiol., 27:235, 1936.
3. Barker, L. E.: Discussion: The relation of dilatation of the duodenum to gastric disturbance, Bull. J. Hopkins Hosp., 178:37, 1906.
4. Bell, J. Kenner: Intermittent duodenal obstruction, J. Mich. State Med. Soc., 34:151, 1935.
5. Bernheim-Karrer, O.: Corr-blatt. f. Schweiz. Aerzte., Basel, 1904, 34:257. Quoted from Miller and Gage, Arch. Dis. Child., 10:179, 1935.
6. Bloodgood, Joseph C.: Acute dilatation of the stomach and gastromesenteric ileus, Ann. Surg., 46:736, 1907.
7. Bloodgood, Joseph C.: Dilatation of the duodenum in relation to surgery of the stomach and colon, J. A. M. A., 59:117, 1912.
8. Bloom, Arthur R., and Arens, Robert A.: Duodenal stasis, J. A. M. A., 89:1330, 1927.
9. Boernerus, F. Quoted by Kellogg and Kellogg, Ann. Surg., 73:578, 1921.
10. Braid, Frances: Congenital chronic duodenal ob-



struction with peritoneal bands, Proc. Royal Soc. Med., 26:1540, 1933.

11. Brown, Ralph C.: Diagnosis and treatment of duodenal stasis, 21:169, 1937.

12. Cabot Case No. 24491, New Eng. J. Med., 219:924, 1938.

13. Cameron, H. C.: Some forms of vomiting in infancy, Brit. Med. J., 1:765, 1925.

14. Campbell, Seton: Gastromegaly due to arteriomesenteric obstruction of the duodenum, Lancet, 2:1190, 1937.

15. Case, James T.: Roentgen obstructions on the duodenum with special reference to lesions beyond the first portion, Am. J. Roentgenol., 3:314, 1916.

16. Cathey, Arley D.: Chronic duodenal obstruction, Tri-State Med. J., 8:1546, 1935.

17. Conner, Lewis A.: Acute dilatation of the stomach and its relation to mesenteric obstruction of the duodenum, Am. J. Med. Sci., 133:345, 1907.

18. Donovan, Edward J.: Congenital atresia of the duodenum in new-born, Ann. Surg., 103:455, 1936.

19. Downes, William A.: Duodenojejunostomy, Ann. Surg., 68:94, 1918.

20. Downes, William A.: Giant duodenum, Ann. Surg., 66:436, 1917.

21. Dwight, Lewis: Quoted by Codman, E. A.: Chronic obstruction of the duodenum by the route of the mesentery, Bost. M. & S. J., 158:503, 1908.

22. Farrington, Paul R.: Chronic obstruction of the third portion of the duodenum, Colorado Med., 32:109, 1935.

23. Guyot, Quoted by Higgins, Ref. 25.

24. Henske, J. A. and Best, R. Russell: Dilatation of the duodenum, Am. J. Dis. Child., 36:1224, 1926.

25. Higgins, C. C.: Chronic duodenal ileus, Arch. Surg., 13:1, 1926.

26. Hurst, Arthur F.: Chronic obstruction of the duodenum by mesenteric vessels (chronic duodenal ileus), Guy's Hosp. Reports, 72:430, 1922.

27. Hurst, Arthur F. and Briggs, P. J.: The association of chronic duodenal ileus with gastric and duodenal ulcer, Guy's Hosp. Reports, 76:156, 1926.

28. Jones, J. Gaymer: Some notes on duodenal ileus, Guy's Hosp. Reports, 80:475, 1930.

29. Judd, E. Starr and Puestow, Charles B.: Chronic duodenal obstruction, S. Clin. N. Amer., 13:807, 1933.

30. Kellogg, Edward Leland and Kellogg, William A.: Chronic duodenal obstruction with duodenojejunostomy as a method of treatment, Ann. Surg., 73:578, 1921.

31. Kellogg, Edward Leland and Kellogg, William A.: Chronic duodenal stasis, Radiol., 9:23, 1927.

32. Krass, Ernst and Beck, William C.: Chronic duodenal ileus, Ann. Surg., 99:311, 1934.

33. McGehee, John L. and Anderson, William D.: Chronic obstruction and dilatation of the duodenum, Ann. Surg., 105:741, 1937.

34. McGehee, John L.: Chronic obstruction and dilatation of the duodenum, Am. J. Surg., 40:140, 1938.

35. McKenty, James: Chronic duodenal stenosis, Surg. Gynec. & Obst., 38:444, 1924.

36. Miller, Reginald and Gage, H. C.: Chronic duodenal ileus in infancy and childhood, Lancet, 2:115, 1935.

37. Miller, Reginald and Gage, H. C.: Further notes on gastromegaly from duodenal ileus, Arch. Dis. Childhood, 7:65, 1932.

38. Miller, Reginald and Gage, H. C.: Gastromegaly and chronic duodenal ileus in children, Arch. Dis. Childhood, 5:83, 1930.

39. Miller, Reginald and Gage, H. C.: Gastromegaly from arteriomesenteric compression of the duodenum in the newborn, Arch. Dis. Childhood, 10:179, 1935.

40. Mullen, B. P.: Chronic duodenal obstruction, West. J. Surg. Obst. & Gynec., 47:85, 1939.

41. Ochsner, A. J.: Further obstructions on the anatomy of the duodenum, Am. J. Med. Sci., 132:1, 1908.

42. Patterson, J. C.: Chronic obstruction of the duodenum due to pressure from mesentery, South. Surg., 4:175, 1935.

43. Perry, E. C. and Shaw, L. E.: On diseases of the duodenum, Guy's Hosp. Reports, 50:171, 1893.

44. Regnier, E. A.: Case report: Congenital obstruction of the third portion of the duodenum in a two year old boy, Minnesota Med., 18:60, 1935.

45. Rowlands, R. P.: Duodenal ileus, Lancet, 1:1106, 1933.

46. Shattuck, Howard F. and Imboden, Harry M.: Chronic intermittent duodenal obstruction, J. A. M. A., 98:943, 1932.

47. Stavely, Albert L.: Chronic gastromesenteric ileus, Surg. Gynec. & Obst., 11:288, 1910.

48. Stenson, Walter: Duodenal occlusion in the newborn, Am. J. Dis. Child., 56:1066, 1938.

49. Sturtevant, Mills: Megaduodenum and duodenal obstruction, Radiol., 35:185, 1939.

50. Washburn, R. N. and Wilbur, D. L.: Obstruction of the duodenum produced by aneurysm of the abdominal aorta, Proc. Staff Meet. Mayo Clin., 11:678, 1936.

51. Waugh, J. M.: Duodenal obstruction secondary to chronic cholecystitis with cholecystoduodenal fistula, Proc. Staff Meet. Mayo Clin., 12:694, 1937.

52. Wilkie, D. P. D.: Chronic duodenal ileus, Am. J. Med. Sci., 173:643, 1927.

53. Yeats, G. D.: Cited by Higgins, Ref. 25.

## OSTEOMYELITIS OF THE UPPER END OF THE FEMUR\*

### DESCRIPTION OF A DIAGNOSTIC SIGN

WALTER MOSS, M. D.

LAKE CHARLES

That osteomyelitis is the scourge of surgical practice and the nemesis even to the best of surgeons, is by no means a misstatement of fact.

Haden and Orr, Baer and others have given the profession effective weapons with which to cause restitution of bone tissue, after the ravages of osteomyelitis have caused profound impairment of the osseous site of inflammation. However, the inestimable damage to parenchymatous organs, which have been severely impaired during the course of the disease, is permanent.

The fact that the treatment of chronic osteomyelitis has become standardized on unsurgical, though generally effective methods, should be an incentive for the addition of more general or specific information, which will make possible the early diagnosis of this disease, that is the recognition of osteomyelitis in the acute stage. It is with this intent that this modest contribution is made.

\*Scheduled to have been read at the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

## DIAGNOSIS

There is no more difficult diagnosis to make than that of acute osteomyelitis; and to obtain the best results it is imperative that operation be done while the disease is still in the acute stage. In this respect, there is rigid concurrence in the opinions of those of experience. It is not possible to estimate the duration of the acute process in measures of time, or extent of involvement. This difficulty, certainly, is the result of the variation in the virulence of the infection and the resistance of the host. Nevertheless, if osteotomy is done within the first few hours after the onset of the disease, and before its extension further than the inner layers of the bone cortex, an extensive pathologic process is usually avoided. The morbidity of the disease in such cases is but little greater than that occurring as the result of a furuncle of considerable size.

From this stage, during which osteotomy promises complete and permanent repair, the disease rapidly progresses to the stage of chronicity. The diagnosis is then made with relative ease, because, as the infection extends throughout the bone and lifts the periosteum, the clinical manifestations are conclusive and may be further corroborated by radiographic evidence. The latter is never of any value in attempting to recognize the disease in the acute stage.

The clinical manifestations and results of chronic osteomyelitis need no amplification for one who has had even the slightest experience with treating patients so affected. The foul, constant pus-draining wounds, the sinuses persisting over a period of years, the permanent crippling effects, not to speak of the exhaustive toxic process associated with systemic febrile attacks resulting in permanent scarring effect of the parenchymatous organs, are sources of irritation and spiritual pain to the attending physician. The multiplicity of the areas affected is not rare in occurrence and leads to more devastating and disparaging consequences.

Osteomyelitis occurs most frequently in that portion of the bone nearest the epiphyses, because in this location are found the

finer capillaries through which blood-borne bacteria find their way into the cancellous tissue. In regard to the particular bone involved we find that it is more or less universally agreed that the proximal end of the tibia is most frequently attacked, then the distal end of the femur, the distal ends of the tibia and fibula, the proximal end of the humerus, the distal end of the radius, the distal end of the humerus and the proximal end of the femur, in the order given. Thus we learn that the upper end of the femur is less frequently involved than any of the areas usually attacked by this disease.

## INVOLVEMENT OF THE FEMUR

During my residency at Charity Hospital in New Orleans, I treated cases of osteomyelitis of the neck of the femur, and each one of these patients presented certain clinical signs of such constancy that I have felt that it is incumbent upon me to report the same. I do not intend to convey the impression that every case of osteomyelitis of the neck of the femur will present these particular signs. I found, however, that in every case in which these clinical phenomena were observed, osteomyelitis proved by osteotomy was present. Moreover, the signs were present early in the disease and in three of my cases it was possible to terminate the process before it had advanced beyond the acute stage. I was impressed with the fact that all of these patients were treated from one to 16 days after the onset, and yet, the chronicity usually attendant upon cases of osteomyelitis of similar hours' duration did not result in most of these cases.

As will be observed on reviewing the briefs of my cases, all of the patients complained of very severe pain at one point. If, as in cases 1 and 3, the infection was extensive, there was tenderness on pressure made over other portions of the bone, the point of maximum tenderness being just below the inguinal ligament over the neck of the femur. The histories of these patients enabled me to determine that that point was the site of the earliest pain. The other patients presented no other points of tenderness, and osteotomy resulted in termination of the illness and a short convalescence.

The next most important sign was the fixation of both hip and knee joints with the thigh flexed on the abdomen and the leg flexed on the thigh. This latter deformity is, of course, observed in other acute clinical entities. However, I feel that the simultaneous occurrence of these two signs, in the absence of evidence pointing to the more common clinical entities, justifies an emergency osteotomy of the femoral neck.

Another important clinical phenomenon that was recognized in these cases was that slight movement of the hip joint could be accomplished without causing the patient to complain of pain.

#### TREATMENT

The treatment of osteomyelitis of the neck of the femur is the same as that for a similar condition elsewhere. I use the lateral approach because of the dangers of attempting any other. The incision begins just below the great trochanter and extends four to six inches down the thigh. The muscles are divided, the periosteum exposed and incised, the first drill hole is begun by directing the drill upward and medially, entering the marrow cavity as near to the level of the capsule of the hip joint as is possible. Other drill holes are made down the shaft of the bone as are indicated, according to the extent of the existing pathologic process.

The important result of this work is the aid it lends in the diagnosis of osteomyelitis of the neck of the femur. More important is the fact that all of these patients were children with ages ranging from 18 months to 13 years. The 13 year old patient could understand no English, so history becomes a more or less irrelevant consideration in handling these patients. The surgeon must exercise his judgment on the basis of physical signs alone.

Case one was the first of my series and stands as a martyr to the cause. Eventually resection of the head and neck of the femur was necessary and, though these were regenerated in a crude form, the patient is progressing through adolescence with one leg gradually outgrowing the other. Case two died of septicemia which was imminent

when the patient was admitted to the hospital. The seventh case was one complicated by osteomyelitis primarily in the os calcis of the opposite leg, and septicemia. Resection of the head of the femur was done later.

#### CASE REPORT NO. 1

I. N., a white female, 13 years of age, was admitted to the hospital complaining of pain in the region of the right femoral ring, the temperature was 104° F. The illness began suddenly two days before admission, and the temperature the day before admission was 103° F. When first examined in the hospital there was some swelling about the right hip joint. The thigh was flexed on the abdomen, the leg was flexed on the thigh. Slight movements of the hip joint could be accomplished without causing pain. No tenderness was elicited on pressure over the great trochanter or lateral aspect of the shaft of the femur. Pressure over the femur just below the inguinal ligament in the midline of the thigh caused the patient to complain of excruciating pain. Total white blood cell count 15,900, neutrophils 85 per cent. Roentgenologic examination showed a marked destructive process throughout the femur. At this time there was tenderness on pressure over the trochanter and shaft of the bone. Osteotomy disclosed an extensive osteomyelitis of the femur with extreme softening of bone in the region of the neck. At a later date resection of the upper end of the femur was done to effect better drainage.

#### CASE REPORT NO. 2

O. W., a colored female, 7 years of age, was admitted to the hospital complaining of pain in the left thigh and high fever, four days' duration. The temperature was 104° F. on admission. On examination it was learned that there was tenderness on pressure along the entire extent of the femur. The left thigh was flexed on the abdomen and the leg was flexed on the thigh. Slight movement of the hip joint could be accomplished without causing pain. There was excruciating tenderness on pressure over a point just below the inguinal ligament in the region of the neck of the femur. The total white blood cell count was 21,500, with neutrophils 86 per cent. Osteotomy in this case revealed an advanced osteomyelitis of the femur with the pathology particularly marked in the region of the neck.

#### CASE REPORT NO. 3

C. A., a white female, 18 months of age, was admitted to the hospital with the history of having cried for four days from pressure on, or movement of, the right thigh. Extreme tenderness was elicited on pressure over the femur, just below the inguinal ligament. Movement of right hip joint caused very little pain. The thigh was flexed on the abdomen and the leg was flexed on the thigh. There was some swelling about the hip joint and upper thigh. On the day of admission the tem-

perature was 104° F., and that night it was 106° F. The total white blood cell count was 13,600 and the neutrophils 83 per cent. Osteotomy was done, sanguino-purulent fluid was drained from beneath the periosteum and soft bone was encountered on drilling the cortex of the bone.

#### CASE REPORT NO. 4

D. G., a white male, 5 years of age, was admitted to the hospital with the history of falling over a peg, which caused a blow to his right femoral region, four days before admission. He had complained of pain in the upper right thigh since the time of the injury, and the temperature had been elevated. There was no tenderness on pressure over the femur at any point, except when pressure was made over the neck of the femur just below the inguinal ligament. The right thigh was flexed on the abdomen and the leg was flexed on the thigh, the temperature was 102° F. Roentgenologic examination offered no assistance in making the diagnosis. The total white blood cell count was 16,000 and the neutrophils 71 per cent. Osteotomy was done and the bony structure of the neck of the femur was found markedly softened. A purulent fluid under pressure exuded from the marrow cavity.

#### CASE REPORT NO. 5

V. A., a white female, 11 years of age, was admitted to the hospital complaining of pain in the right hip of 13 days' duration. She was standing and reaching when the pain began in the upper part of the right thigh. The thigh was flexed on the abdomen and the leg was flexed on the thigh. Tenderness on pressure over the upper one-third of the thigh was elicited. Passive motion of the hip joint could be accomplished without causing pain. The temperature was 102° F. on admission. The total white blood cell count was 8,000, neutrophils 78 per cent. Osteotomy was done; subperiosteal abscess and osteomyelitis, localized in the neck of the femur, was recognized.

#### CASE REPORT NO. 6

A. L., a white female, 6 years of age, was admitted to the hospital complaining of inability to walk; duration 24 hours. There was tenderness in the lower right abdomen, thigh and leg. The typical point of tenderness and fixation of the leg and thigh were noticed on physical examination. X-ray examination revealed no pathology. Total white cell count was 10,600 with 69 per cent neutrophils. Osteotomy was done in this case, the periosteum peeled away readily and there was an abnormal amount of bleeding encountered as a result. The bone was drilled in the region of the femoral neck and less resistance than usual was encountered; the bloody contents of the marrow cavity fairly bulged out of the drill holes, due to pressure within the marrow cavity.

#### CASE REPORT NO. 7

A seventh case presented with development of the point of tenderness in the region of the fem-

oral neck, and the fixation of the thigh and leg in the position already described. There already existed an osteomyelitis of four weeks' duration in the right os calcis, and a *Staphylococcus aureus* septicemia. Signs of osteomyelitis were found on osteotomy of the neck of the left femur. Four months later this patient was readmitted with a draining sinus and the head and neck of the femur were resected.

#### SUMMARY

This series of cases is small in number, and there is no conclusion to be drawn relating to the superior effect of any one form of treatment in obtaining a decrease in the morbidity or mortality. I have merely attempted to call your attention to a diagnostic sign, which has helped me in a number of cases, to make an earlier diagnosis of osteomyelitis in this location.

All of the cases presented were slower in developing necrotic bone changes, the blood counts were lower, and the elevation in temperature was not so great as found in osteomyelitis elsewhere in the body. The symptoms, especially pain and the degree of toxemia existing, were severe, being greatly out of proportion to the other evidences of disease mentioned above.

To claim that osteomyelitis of the neck of the femur can be positively identified by recognizing the points of tenderness and the usual flexion deformity that occurs in the above description would be ridiculous. I recently explored the neck of the femur in a child of 12 years of age, and later discovered that the osteomyelitis existed in the acetabulum. This patient presented almost the identical history and physical and laboratory signs as the cases outlined above.

### DELIVERY OF THE BREECH\*

GEORGE A. MAYER, M. D.  
NEW ORLEANS

It is a well-known fact, and well substantiated by figures, that the danger to the child presenting by the breech is greater than one presenting by the vertex. Pierson,<sup>1</sup> of Sloane Maternity, reported a

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

corrected fetal mortality of 12 per cent; Caldwell and Studdiford,<sup>2</sup> 11.1 per cent; Lapham,<sup>3</sup> operative 8.7 per cent; Taussig,<sup>4</sup> of St. Louis, gives 11.6 per cent; Mohler,<sup>5</sup> 5.5 per cent and McGuinness<sup>6</sup> found 19.8 per cent. The full term child presented itself for delivery with the breech as the presenting part in 2.8 per cent of the deliveries at Charity Hospital in the last three years. Appreciating the fact that there is a greater fetal danger, E. L. King, chief of staff, has formulated certain regulations:

1. Careful clinical study and accurate pelvimetry.
2. External version attempted with caution and gentleness.
3. Estimating with all means possible the size of the fetus in relation to the maternal pelvis.
4. Restriction of vaginal examinations for fear of rupturing the membranes prematurely.
5. A member of the staff is notified of all breech cases in labor so that the proper type of delivery may be chosen.

#### TYPES OF BREECH PRESENTATION

The management detailed will pertain to cases of breech presentation in primiparas or multiparas with normal pelves and soft parts, and with average sized fetuses. Depending on the attitude or posture of the child, we find: 1. Complete, double or full breech, the buttocks with the feet alongside them, presenting at the internal os; 2. (a) incomplete breech, the legs extended against the trunk and the feet near the face; (b) single or double footling; (c) one or both knees presenting. It must not be forgotten that there is little variation in the mechanism of labor as it is the same whether complete breech presents or there is an error of attitude as a footling or single breech. Even in the primipara, the breech remains high up until labor is quite well advanced, often until dilatation of the cervix is completed and the bag of waters ruptured.

Many breeches are delivered in the homes by the general practitioner and individual obstetricians. It would not be fair to propose to them to treat such cases by radical methods such as elimination of the

second stage by proceeding with breech extraction in all cases upon completion of cervical dilatation. Sherman<sup>7</sup> emphasizes this in saying: "What should be taught is how properly to handle a breech when confronted with one and how to make the presentation a less difficult one." Polak advocates "let her push and you guide"; while Caldwell and Studdiford say "hands off as long as labor is advancing." I believe in close observation, patience and when interfering, to "make haste slowly." The patient should be told that her child will be born "foot first." Most women will welcome an explanation and bear the ordeal better.

#### TECHNIC OF DELIVERY

Labor having been definitely established, analgesia is produced with an initial dose of sodium amytal, grains 3, or nembutal, grains 4, and scopolamine, grain 1/200, or a small dose of morphine if there are no contraindications. A supplementary dose may be necessary later, but the patient must be able to bear down when requested to without being disoriented. The progress of the labor is followed, recording the fetal heart beats as to rate and character, as well as by keeping the maternal resistance as normal as possible. The bladder is catheterized when distended and also just before delivery. Only rectal examinations are made but when definite information is desired, a careful vaginal exploration is necessary. Timing one's steps is quite essential for a smooth delivery. When the breech is near the vulva, gas-oxygen anesthesia is begun (40 per cent nitrous oxide and 60 per cent oxygen). This is given more for reassurance, as the expulsive forces must not be modified. The perineum is "ironed out" with the aid of soap in multiparas and to a lesser degree in primiparas. The rectum is emptied with the hand in the vagina, and the vulva again flushed with water. A clean pad is placed under the buttocks. An episiotomy is now in order, and is done in all primiparas and some multiparas. It may be done on the side to which the presenting sacrum points. The depth is determined by the estimated size of the fetal head, the width of the outlet

and the character of the musculature of the perineum. DeLee<sup>8</sup> sounds a sweet note: "It saves delay in the delivery of the shoulders and head and surely has saved many babies' lives as well as prevented complete laceration of the perineum."

The patient is instructed to bear down and as the breech or lower extremities emerge, it is or they are grasped and guided so as to favor rotation (external restitution). An assistant may now locate and follow the descent of the head, being mindful that too much haste may extend the arms above the head. Manual aid is always given to accomplish the delivery of both arms as it is time-saving, and is greatly simplified by the episiotomy. When the scapulae show from under the symphysis pubis, the shoulders have a tendency to rotate into an anteroposterior position. Continued gentle downward traction following this tendency will deliver the anterior arm either spontaneously or with slight pressure exerted backwards by the finger in the axillary fold. The body of the child is now rotated without traction, 180 degrees through an arc in the opposite direction from that which it took for external restitution. The second arm is then delivered as the first. (One may deliver the posterior arm first by gently swinging the body of the child laterally and upwards on its ventral side and the posterior arm swept out by the homolateral hand of the operator. The body is then depressed downwards and the anterior arm delivered as described in the first procedure.) During this procedure the patient receives almost pure oxygen, but is again changed, if forceps are to be applied to the aftercoming head, so as to get deep anesthesia. The head is directed into the pelvis after the arms have been delivered. By firm and properly directed pressure from above and gentle traction from below, the head takes a direct anteroposterior position. This may also be accomplished by momentarily allowing the child to hang downwards. This permits the shortest diameters of the fetal head, the occipitofrontal and occipitobregmatic to glide downwards through the basin, adequate head flexion being assured. It now

remains merely to lift the child while it rests on the forearm and exerting slight pressure from above, and the second stage of labor is complete. Should the head fail to descend after one or two trials as outlined, the aftercoming head forceps as devised by Piper are applied. The head must be in an anteroposterior position and the body of the child held in an extended position above the symphysis of the mother. Traction, combined with slight effort at flexion, is gently done. Well directed force instead of brutal strength is distinctly in order, because more babies die at this point from injury than from asphyxia.

In a delivery where labor has progressed to the point of complete effacement and dilatation of the cervix is arrested, a decomposition and extraction of the child is done under deep surgical anesthesia. The mortality will be greater if this is attempted when the cervix is improperly dilated. I believe if the patient has not been examined more than once, under proper aseptic precautions, a low type section may be considered good obstetrical practice.

#### CONCLUSIONS

I have illustrated this paper by a moving picture in color emphasizing the following points:

1. All breech babies delivered by vagina should be delivered under light anesthesia.
2. Deep anesthesia for impaction and the delivery of the head.
3. Liberal mediolateral episiotomy as the perineum reaches full distention.
4. It is better to stand by than to resort to undue interference. In the face of improvements in methods and the tendency to substitute artificial procedures for the natural, there is still too high fetal mortality.

#### REFERENCES

1. Pierson, R. N.: Spinal and cranial injuries of baby in breech presentation, *Surg. Gynec. Obst.*, 37:802, 1923.
2. Caldwell, W. E., Studdiford, W. E.: Review of breech delivery during five-year period at Sloane Hospital for Women, *Am. J. Obst. & Gynec.*, 18:623, 1929.
3. Lapham, M. E.: Management of breech presentation, *Mississippi Doctor*, 16:32, 1938.
4. Taussig, F. J.: Breech presentation, *Am. J. Obst. & Gynec.*, 22:304, 1931.
5. Mohler, R. W.: Management of breech deliveries, *Am. J. Obst. & Gynec.*, 36:400, 1938.
6. McGuinness, F. G.: Prophylactic external cephalic version in breech presentation, *Canad. Med. A. J.*, 18:289, 1928.

7. Sherman, J. T.: *Breech delivery*, Bull. Lying-in Hosp. New York, 13:344, 1932.

8. DeLee, J. B.: *Principles and Practice of Obstetrics*, Philadelphia, W. B. Saunders Co., 1916; p. 627.

## DISCUSSION

Dr. Rhett McMahon (Baton Rouge): The obstetrical film Dr. Mayer showed is one of the finest I have ever had the pleasure of seeing. This leaves little to discuss, as far as the method of delivery is concerned. As usual, when speaking of methods, there are two procedures, conservative and expectant, or radical and active. Dr. Mayer has given visual demonstration of conservative or expectant treatment. For the general practitioner who does obstetrics, this is by far the procedure of choice. On the other hand, where we might have the full advantages of a well-equipped maternity hospital, with the necessary help and most important of all, the services of a qualified anesthetist, the more active procedure may be equally as good and some men claim it is slightly better. As I say though, for the average man, I do not believe there is any choice of procedure. Conservative procedure is far safer in the average cases. In maternities with services of qualified anesthetists and deep anesthesia we can more thoroughly prepare the birth canal for delivery of the breech. The soft parts are often the cause of distortion. In the cervix in the breech, you know, we have not the advantage of the complete dilatation for the head that we get in the vertex. In this instance we are delivering small parts first, followed by larger shoulders and still larger head. The shoulders meet resistance, the arms are frequently extended which is a very trying complication. The head meets its resistance too in the incompletely dilated cervix and we are often confronted with difficulty at that point. With a deep surgical anesthesia we can be sure of full dilatation of the cervix and we are better prepared to handle the delivery of the aftercoming head. For the successful termination of breech delivery, we must have full, complete dilatation of the os and complete relaxation of the lower uterine segment. This is accomplished only by deep surgical anesthesia. As I have said, there is a possibility, under these conditions, that the more active treatment may yield somewhat better results. However, whichever procedure is chosen, as Dr. Mayer has expressed it, the one thought in the obstetrician's mind must be that there are more babies lost in the delivery of the breech from trauma than any other thing.

The question of cesarean section of the breech comes up. The question of cesarean section here depends upon three main points: pelvic disproportion, age of primipara and possibly a big baby. The diagnosis of disproportion in a breech is more positive than in the vertex. In regard to the diagnosis of proportion we have not the advantage of trial labor in the breech. Very frequently with a head that would deliver by

vertex presentation, there may be a slight degree of disproportion in the breech. In the elderly primipara this point should be firmly established. The fetal mortality rate is high, as demonstrated, 6 to 32 per cent. When a woman is pregnant for the first and only time, due consideration must be given.

Dr. E. L. King (New Orleans): The points brought up by Dr. McMahon are good and should be borne in mind. Most of us approve the method of extraction as brought out by Dr. Mayer. We let the patient do her own work and rarely resort to breech extraction. Routine extraction has been done at the Boston Lying-In Hospital, where extremely satisfactory results are reported. There it is done by trained experts making a study of that particular technic. In certain cases extraction is necessary.

Another point is the fact that we can take more time than has been generally put down in the textbooks. The eight minutes limit has been responsible for more harm than good. There may be considerable damage by injudicious haste. I saw Dr. Potter in Buffalo perform several versions; in one case he took thirteen minutes. He took his time after the cord was down, clamped, cut and tied it, and delivered the head in thirteen minutes. There is thus the question of more gentleness and accuracy in manipulation, rather than force.

In regard to extended arms, we should not worry if we happen to break an arm. One man some years ago wrote a paper on deliberate fractures of the humerus in difficult cases. It was his idea that it was better to break an arm than to break the neck. I have, on some occasions broken arms accidentally with no apologies because we had a healthy baby with no broken neck or other damage.

Dr. George A. Mayer (In closing): As a supplement to my former remarks, I find that complete and satisfactory analgesia alters to some extent the course of labor in breech deliveries. This is due to an inhibition of the voluntary forces of the mother. Since the breech is a poor dilator, those voluntary forces used to full extent are highly desirable; hence, in home deliveries a few drops of chloroform at the time the perineum is ironed out or/and an episiotomy done or/and when the head is delivered.

In hospital delivery gas-oxygen is used to a minimum degree—and deepened as per requirements above. I like novocain infiltration of the perineum using 10 to 20 c. c. of 1 per cent solution.

Sacral analgesia, 1 per cent novocain in 60 to 75 c. c. amounts, has been my preference because it gives relaxation and the full use of the maternal voluntary forces.

Close observation of the fetal heart tones or the pulse in the foot or circulation in the breech is a guide as to whether or not the tempo of the delivery should be altered. The judgment of the

operator will signal for lighter or deeper anesthesia.

I am in complete agreement with Pierson's statement that, "frantic haste as opposed to deliberate skill has been the clinical error involved."

## RADIUM TREATMENT OF HEMANGIOMATA\*

W. R. HARWELL, M. D.  
SHREVEPORT

No doubt the one thought and hope uppermost in the mind and heart of every expectant mother, is that her baby may be born as nearly perfect in physical and mental development as she can imagine, though she may be disappointed over the sex or the color of the hair.

Aside from some major deformity or monstrosity, there is nothing more alarming to the parents than a large hemangioma, or birthmark, marring the beauty of the new baby, practically all of which are present at birth. Incidence of these defects has been estimated as high as 33 1/3 per cent; in the examination of approximately 1000 babies at a "Better Babies Contest" a few years ago, we discovered 75 angiomas of various sizes and types.

MacCallum<sup>1</sup> defines hemangioma as a tumor composed essentially of blood channels in contradistinction to a lymphangioma whose cavities contain lymph instead of blood. A true hemangioma is distinguished from a mere dilatation of capillaries or venules belonging to the general circulation, by the fact that its blood channels grow independently without regard to the laws which govern distribution of such vessels. It thereby forms a mass which is somewhat withdrawn from the general circulation, and although supplied with artery and vein, does not stand in any intimate anastomotic relation with the adjacent circulation.

### TYPES AND STRUCTURE OF HEMANGIOMATA

There are numerous classifications of these lesions, but the simplest and most common, is that given by MacKee<sup>2</sup>: (1) Ne-

vus flammeus, or port wine mark, which is usually not elevated above the surface of the skin; (2) nevus vasculosus, or strawberry mark, which involves the superficial vessels and is more or less elevated; (3) angioma cavernosa which involves the deep vessels.

They may vary in size from the head of a pin to enormous proportions and may be found in any part of the body. With the exception of the pleura, testes, cartilaginous tissue and certain parts of the nervous system, there is said to be no portion of the human body in which these tumors have not been observed.<sup>3</sup> However, there seems to be a predilection for the exposed parts, particularly the head, face and neck. In a series of 109 persons treated by us in the past few years, the distribution was as follows: Head, face and neck 62 per cent, body 25 per cent, extremities 12 per cent.

The structure of angioma varies from independent vessels with distinct walls to a true areolar tissue resembling erectile organs. Growth takes place by the extension of vascular buds into their surroundings, the adjacent tissue becoming completely infiltrated by the constant formation and dilatation of capillaries. While this manner of growth has the infiltrating character of malignant neoplasms, destroying the affected parts inclusive of bone, metastasis of angiomatous tumors has never been observed, and there is no tendency to recurrence after complete removal.<sup>3</sup>

### ETIOLOGY

The cause of these defects is unknown, the vast majority being congenital. Numerous theories have been advanced to account for their origin, chief among which were the old lay theories of divine anger and emotional impressions of the mother. Among the more fundamental theories, I will mention those given by Matas<sup>3</sup>: (1) Localized disorders in the nutrition of pre-existing vessels leading to progressive hyperplasia; (2) independent neovascular formation of migratory embryonal buds detached from germinal areas and leading an independent existence; (3) influence of physical and mechanical surface pressure

\*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.



on the fetus; (4) neural theory, the last of which he considers the most likely.

MacCallum<sup>1</sup> states that cavernous angiomas of the face are, as a rule, distributed over the region of one or more divisions of the fifth cranial nerve and seldom cross the midline of the face.

While the majority of angiomas are present at birth, or shortly after, we have in our series a cavernous angioma about the elbow of a woman 58 years of age, who gave the duration as 15 years; another case of a woman 52 years old, who came to us for treatment of an angioma of the lip, duration five or six years.

#### DIAGNOSIS

The diagnosis of the port wine and strawberry marks is usually made at first glance as well as many of the cavernous hemangiomas. However, there are some that require differentiating. The compressible character of the growth, returning to its former size and appearance on release of pressure, will usually prove the diagnosis, though some of the deeper ones may not be differentiated from solid tumors.

#### PROGNOSIS

The prognosis in properly treated cases is good, but there are certain dangers in untreated cases, such as hemorrhage, infection or thrombophlebitis. Some are said to undergo spontaneous regression and cure. I have seen one such case following injury and ulceration, but, since the usual tendency is to grow, I feel that waiting for such a course is simply a loss of time. We have all seen cases which have grown from the minutest lesion at birth, to a real deformity within a few weeks.

#### TREATMENT

Treatment of hemangiomas should begin as soon after discovery as is possible, since this will mean a saving in time and expense, as well as give a better chance for perfect result. Innumerable methods have been used and suggested for the removal of these growths. The simplest method of treatment is the old compression method in which some spongy or elastic pad is applied to the tumor in such a way as to keep constant pressure over a prolonged period, the results being very uncertain and unsatis-

factory. Other methods include cauterization with escharotics such as carbolic acid or nitric acid, steam or hot air. Carbon dioxide snow has had wide use in the treatment of superficial lesions. The injection of such substances as alcohol, boiling water and other chemicals has been used.

The first patient I ever saw treated had a cavernous hemangioma of the thigh, which was injected with boiling water, resulting in a considerable slough.

Stelwagon<sup>4</sup> used a combination of multiple puncture by the galvano-cautery, or a needle dipped in nitric acid, followed by pressure. Surgical methods are varied; they include strangulating ligatures, ligation of afferent vessels and complete removal.

The object in the treatment of hemangiomas is the removal of the growth with the least possible undesirable sequelae, and some method must be used which is easy of application, safe and reliable.

In radium treatment, we feel that we have a method that fulfils these requirements, but only when used by one who knows how to use it; one inexperienced in its use, may produce most unsatisfactory results.

Matas<sup>3</sup> made this statement: "If radium is available, its application by the most recent technic should be preferred over all other methods, in the hands of a thoroughly competent expert, as the most satisfactory treatment."

According to Strauss,<sup>5</sup> Wickham and Degrais, in 1912, were the first to report hemangiomas treated with radium. Since that time different methods of application have been tried and advocated, but in general, radium treatment has become the method of choice. There is one exception; the port wine mark in which radium treatment is unsatisfactory, although some have reported good results.<sup>6</sup> Objections to its use are: First, if the lesion is large, it is difficult to obtain uniform blanching; second, the amount of radiation required will be such that atrophic changes in the skin and telangiectasia will be more unsatisfactory than the original blemish.

In the treatment of strawberry marks

whose pathology is in the superficial vessels, gentle radium applications made with little or no filtration, making use of the beta rays of radium and repeated at intervals of a few weeks, will give most satisfactory results with a minimum of skin changes. MacKee<sup>2</sup> states that the results of beta ray therapy in nevus vasculosus are so striking, so perfect, that they may be placed among the most notable achievements of radium therapy in treatment of cutaneous affections.

Treatment of cavernous hemangiomata, as a rule, is more prolonged and great care must be used to produce a minimum of skin changes. Numerous technics have been advocated for the application of radium in this type of angioma. Of course, surface application of radium is the simplest and safest. However, implantation of radium needles and radon is advocated by some. Withers and Ranson<sup>7</sup> in 1927, claimed superior results for the implantation of radon seeds of 0.2 to 0.3 mc. content throughout the tumor, allowing one implant to about 1 c.c. of bulk. Strauss,<sup>5</sup> in 1927, reported good results in a series of 22 patients he treated with surface applications. Schmidt,<sup>8</sup> in 1927, used a technic in which steel needles containing 5 to 10 mg. radium element were buried in the tumor for a period of 12 hours. Kaplan<sup>9</sup> uses steel or monel needles of low content, buried in the tumor and left in situ three or four days or more.

Every method will have its apparent advantages and disadvantages. The disadvantages in the use of the buried technic are: (1) Inflammatory reaction and danger of infection; (2) danger of sloughing when needles of large content are used; (3) length of time and hospitalization when needles of low content are used.

The patients seen in private practice want a method of treatment which is painless and free from danger. I find that they prefer to come for treatment at long intervals over a protracted period, although living at a considerable distance.

My method of treating the cavernous angioma, which involves the deep subcutaneous tissue, is the use of surface

application of radium with fairly heavy filtration, eliminating a great portion of the beta ray effect and utilizing principally the gamma rays. I used a filtration up to 1 mm. or possibly 2 mm. of lead, with rubber next to the skin and an elevation of about  $\frac{1}{4}$  to  $\frac{1}{2}$  inch, giving a dose of 100 to 400 mg. hours per field, at intervals of several weeks. In some locations, such as the extremities, cross firing may be done to advantage to shorten the treatment period.

#### CASE REPORT NO. 1

Baby J. L. H., a white male, aged 2½ months, was brought to us on December 28, 1936, for treatment of a massive cavernous hemangioma, involving practically the entire right cheek, temple and eyelid, growing rapidly from a very small mark at birth. This patient received a total of 2405 mg. hours of radium element in eight applications over a period of 13 months, the applications being made over several areas. The technic used was surface application,  $\frac{1}{4}$  to  $\frac{1}{2}$  inch elevation, 1 mm. lead filter, heavy rubber next to skin.

#### CASE REPORT NO. 2

Baby O. C. L., a white female, was brought to us on December 30, 1936, eight hours after birth, with a massive cavernous hemangioma involving the greater portion of the right forearm. This baby received a total of 2100 mg. hours of radium over four ports, within three months. The technic used was surface application,  $\frac{1}{4}$  inch elevation, 1 mm. lead filter, heavy rubber next to skin.

#### CASE REPORT NO. 3

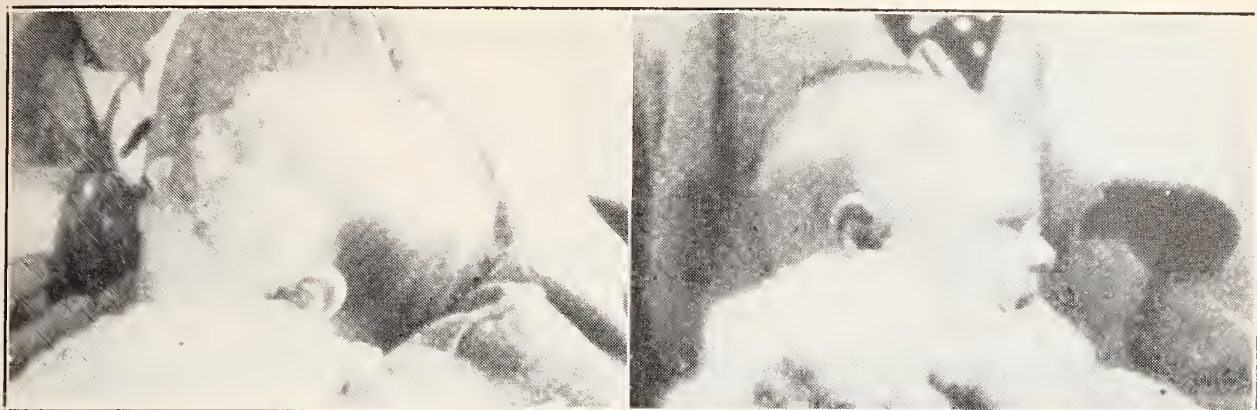
S. A. C., a white male, aged 9 years, was brought to us, July 16, 1923, for treatment of massive cavernous hemangioma involving the lower lip and buccal tissues of right cheek. Bleeding and appearance had become serious. This patient was treated from July 16, 1923, to November 5, 1925, receiving a total of 2950 mg. hours of radium given over several ports, surface application.

#### SUMMARY

The treatment of hemangiomata by radium is discussed in the light of personal experience and the experience of others. Three case histories illustrating the use of radium in this condition are reported.

#### REFERENCES

1. MacCallum, W. G.: *A Text Book of Pathology*. Philadelphia, W. B. Saunders Co., 1916, pp. 899-900.
2. MacKee, George M.: *X-rays and Radium in Treatment of Diseases of the Skin*. Philadelphia, Lea & Febiger, 1927, pp. 629-630.
3. Matas, Rudolph: *Tumors of Blood Vessels*. Sajou's Analytic Cyclopedia of Practical Medicine. Philadelphia, F. A. Davis Co., 1928, pp. 514-556.
4. Stelwagon, Henry W.: *Diseases of the Skin*. Philadelphia, W. B. Saunders Co., 1915, p. 687.



Case 1. Before and after treatment.



Case 2. Before and after treatment.



Case 3. Before and after treatment.

5. Strauss, A.: Radium treatment of cavernous hemangioma and of epulis, *Am. J. Roentgenol. & Radium Therapy*, 19:265, 1928.
6. Johnson, Zoe Allison: Treatment of nevi with radium, *Radiology*, 8:292, 1927.
7. Withers, Sanford, and Ranson, J. R.: The radium treatment of extensive hemangiomata in infants, *Am. J. Roentgenol. & Radium Therapy*, 8:326, 1927.
8. Schmidt, Wm. H.: The treatment of cavernous angiomas covered with healthy skin, *Am. J. Roentgenol. & Radium Therapy*, 19:271, 1928.
9. Kaplan, Ira I.: *Practical Radiation Therapy*. Philadelphia, W. B. Saunders, 1931, p. 140.

## DISCUSSION

Dr. C. E. Gorman (New Orleans): I really did not intend to discuss this paper but I would like to bring to your attention a few patients whom we have seen at the Charity Hospital Tumor Clinic in New Orleans. Several persons have been seen recently who had multiple hemangiomata around the oral cavity. One of these had a hemangioma of the left side of the tongue. She was treated with interstitial radium. About eighteen months later she returned with a similar lesion to the right side of the tongue in a little different location. This was treated in a similar manner. Both lesions healed perfectly and there was absolutely no scarring of the tongue. We have also found similar results in hemangioma around the lips and other portions of the oral cavity, such as the buccal mucous membrane.

Dr. H. G. F. Edwards (Shreveport): There are many methods in the management of hemangiomata and I have a few slides I would like to show which illustrate the different methods of approach.

The first slide shows a baby who had a hemangioma which was treated with surface application of soft beta rays of radium, using 15 mg. hours for a single application. The next slide shows the results secured. This is an unretouched photograph made several months after treatment. You will notice there is no scarring. Correct radium dosage does not produce scarring.

The next slide shows the cavernous type of hemangioma which, in my opinion, is best treated with interstitial radiation, using low filtration, low radium content needles.

The next slide shows typical strawberry hemangioma of the cheek treated by surface application of beta rays radium and the results obtained.

The following slide is one of strawberry hemangioma on a baby. You will note that these are found on fine babies; puny babies do not seem to have them.

Here is what happens when one waits for a spontaneous cure in hemangiomata; sometimes it does occur but if so the results are not comparable to those treated with the radium. This baby has a large hemangioma of the lip; there are two ulcerations. When treated there is bound to be a scar.

The next slide reveals a hemangioma hypertrophicum. This proliferates rapidly and is treated with electric coagulation. There is no scarring.

This slide shows a lymphangioma of the lip. The tumor is made up of lymph vessels and treated by interstitial radium needles. The next shows the end results.

In general it is conceded that radium in proper dosage is the method of choice in the treatment of vascular birthmarks.

Dr. C. P. Rutledge (Shreveport): Early in my training in radiology it was my privilege to work for about six months with Newcomet in Philadelphia who was one of the pioneers in the treatment of angiomata with radium.

At that time, 20 years ago, he stressed the importance of proceeding cautiously in the treatment of these cases and this is still his attitude. Each patient should be individualized as the same technic will not do for all. My experience with the so called "port wine marks" has been most unsatisfactory. I believe that radium has no place in their treatment. The plastic surgeons are now doing some excellent work with them.

The strawberry marks, if small, are easily destroyed by electro-desiccation with a minimum amount of scarring. Often in treating these patients, I cut a hole the size of the lesion in a piece of adhesive tape and apply the tape over the lesion so that the hole will fit snugly around the hemangioma. I then spark the lesion without danger of injuring the surrounding healthy tissue. The larger ones are amenable to treatment by use of radium with very little filtration. If very superficial, one thickness of blotting paper is sufficient. These are often treated over a period of several months with a rest interval of three to five weeks between treatments.

The cavernous type may be treated by interstitial implantation of radium needles or by surface applications, with heavy or moderate filtration according to the depth of the lesion.

Personally I prefer the surface applications. As a rule the interstitial method gives much quicker results but this is at the expense of possible infection with sloughing, scarring and sometimes hemorrhage.

The cardinal points in the treatment of angiomata with radium are: (1) Treat the lesion early. Do not wait to see what it is going to do. (2) Do not treat it too rapidly; give sufficient time between applications so that the integrity of the skin and surrounding tissues may be preserved. (3) Try not to be too radical and at times be satisfied with something less than perfect results.

Dr. W. R. Harwell (In conclusion): I do not want to leave the impression that we never use the implantation method. There are some cases in which implantation seems to be the only satisfactory method of treatment. The angioma of the tongue mentioned by Dr. Gorman would have been very difficult by any other method. However, I wish to state again that our method of choice is the surface application when possible.

# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.,  
Vice-chairman

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

Edwin L. Zander, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

J. B. Vaughan, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*  
1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

## THE ANNUAL MEETING

It seems advisable again to accentuate and to stress the importance of the annual meeting of the State Society which will be held within a few weeks. This meeting is not only a scientific meeting of pre-eminence but is also an extremely important meeting when the doctors of the state can get together and express their feelings,

present their ideas and discuss fully social, economic, legislative and other phases of the practice of medicine. This is the only opportunity given in the year for action on various matters having to do with our profession and it is extremely important that there be a large representation at the annual convocation.

The tentative program shows that some of the outstanding physicians of Louisiana will appear in the scientific sessions. Not only will there be an opportunity of listening to these men, but there will be some splendid speakers from out of the state, for example Dr. Howard K. Gray, of Rochester, Minnesota, who is going to talk before the section on general surgery upon "The Significance and Surgical Treatment of Ulcerating Lesions of the Stomach." Dr. B. R. Kirklin, one of the outstanding roentgenologists in the United States, also from Rochester, has the most intriguing title for his paper, "Solving Problems in the Diagnosis of Diseases of the Lung," a presentation appealing to physicians in every branch of medicine because surgeons, internists, radiologists and otolaryngologists are concerned at times with lung disorders in their several fields. Before the section on gynecology and obstetrics, Dr. Wendell McLean Long, of Oklahoma City, will present a subject which is practical and which frequently confronts the general practitioner. Dr. Long will address this section on "Uterine Bleeding."

In addition to the importance of this meeting in so far as the business of organized medicine is concerned and the value of the scientific presentations, it must not be forgotten that there are other features which enhance the value of our annual state gathering. There will be a scientific exhibit, a large commercial exhibit in which the newest and latest things in treatment and diagnosis are shown first hand, by the representatives of acceptable commercial houses, to the physician, and lastly there will be the entertainment features which will be pleasurable and enjoyable.

It is mighty nice to see old friends and to renew friendships which distance makes

impossible to keep up. If a large number of our Louisiana doctors turn out for the state meeting they will see their old friends, men they have worked with and known in the past—they will have the chance of friendly conversation and renewing their interests in each other.

---

### THE ANNUAL ORATION

The State Society is to be congratulated this year upon having not one but two annual orators, Governor-elect S. H. Jones and Dr. Rudolph Matas. Neither of these two distinguished gentlemen need introduction to the members of the State Medical Society. Dr. Matas' fame is world-wide, not local. The dean of American surgeons, recipient of the distinguished medal of the American Medical Association, and of so many honors from scientific societies that it is impossible to enumerate them, Dr. Matas has always been a most loyal and devoted member of the Society. The oldest living past president, he is still active as President of the Past Presidents' Advisory Body and the guiding spirit in the organization. One of the attractive features of our annual meeting is the fact that Dr. Matas is invariably present, willing to discuss papers and happy to see his old friends.

Mr. Jones of course, at the present moment Governor-elect of the State of Louisiana, is Louisiana's most publicized citizen. Probably every member of the State Medical Society has heard him talk, either directly or over the radio, and all of them know that he is a speaker of force and character. The State Association is very much interested indeed in the policies that will be followed by the incoming governor in regard to state medical matters. Members of the organization believe that he has a magnificent opportunity of putting the state medical affairs which are under the control of the governor on a basis which will enhance materially the value of the services rendered by the various state agencies. It is the earnest hope of all thinking members of the organization that the medical functions of the state will be completely

depoliticized and that the merit system, possibly through the establishment of civil service regulations, will be dominant in the field of public health and in the personnel of those engaged in the care of the sick. We will be interested in what Mr. Jones has to say on the night of April twenty-third concerning his future policies.

---

### THE SUPPLY OF PHYSICIANS

One of the arguments brought out by proponents of socialized medicine is that there are not enough physicians properly to take care of the general population of these United States. They do not seem to realize that a poor doctor is worse than no doctor. As has been said, the basic element of providing good medical service is the supply of well trained physicians. If the number of doctors is materially increased, it will be impossible adequately to train them. In 1938 there were in this country slightly over 169,000 doctors, a ratio, per population, of a doctor to every 768 persons. Actually the number of physicians in the United States is greater by some 19,000 than all the physicians in Great Britain, Germany, Austria, France, Denmark, Sweden, Norway, Switzerland, Belgium and Holland, according to "Factual Data of Medical Economics" published by the Bureau of Medical Economics of the American Medical Association, and the combined population in these countries is greater by ninety million than the population of the United States. Surely this does not indicate that there is any shortage of doctors in the United States.

It must be emphasized that quality is more important than quantity, again to quote from medical economics, in judging the medical care furnished by physicians. Because of the stand organized medicine has taken relative to the doctor-to-be having a training which is complete, full and well-rounded, the result has been that the standard of medical service is superior to that probably of any country anywhere in the world. A person entering a community in which he is unfamiliar with physicians

will probably have definite assurance that any man he selects as his doctor would be thoroughly capable of taking care of his illness.

Another criticism is that the doctors are not distributed to the rural districts. As a matter of fact in 1936 there were only 241 counties that had a population of over 2,000 persons per physician. The supply of doctors in rural United States is superior to any of the countries that have sickness insurance or state medicine.

Another common complaint is that there is too great a number of specialists. The Directory of the American Medical Association of 1938 lists over 127,000 doctors in general practice, practically 80 per cent of all the doctors in the Directory. These figures compare favorably with the fact that 80 per cent of all illnesses can be and are taken care of by the general practitioner. It is said that about one out of every five patients may require the services of a specialist. This certainly does not seem to be a disproportionate number of doctors specializing in certain branches of medicine. The man in general practice acknowledges an ophthalmologist is necessary when eye troubles develop, that a surgeon is required for the more difficult operations and that a dermatologist may be necessary properly to diagnose some unusual skin condition.

All these statements made above would substantiate the concept held by most of the doctors in this country that medical service is good, that the average practitioner is thoroughly qualified and that the standards of practice in the United States need no interference by governmental agencies, ostensibly to improve them, but which the physicians believe will cause a deterioration in such services.

—o—

### ESSENTIAL HYPERTENSION

Since the publication of Goldblatt's work which showed that hypertension can be brought about through partial ischemia of the kidney, there has been a considerable amount of work in laboratories and clinics which is indicating that the so-called es-

sential hypertension may be due in many instances to pathologic changes which diminish the patency of the large renal vessels. With the new facts that are coming out concerning hypertension it may not be presumptuous to state that possibly within the next few years hypertension will no longer be "essential" but will have a qualifying etiologic name. Blackman,<sup>1</sup> appreciating that experimental hypertension may be brought about by partial occlusion of the two main arteries to the kidneys, has made a study of the renal arteries in 50 cases of essential hypertension. In 86 per cent of the arteries of patients with hypertension it was found that arteriosclerotic plaques projected into the lumina of these vessels. One, or both, of the main renal arteries was stenosed markedly. He believes that these arterial lesions brought about a partial occlusion of the vessels to induce marked hypertension in a manner comparable to that which Goldblatt produces in experimental animals by means of arterial clamps. Other isolated instances have been reported in which partial or complete compression of the main vessels was associated with hypertension.

The urologists have been particularly interested in this problem. They have known that urinary obstruction is often associated with hypertension which is relieved when the obstruction is removed. Schroeder and Steele<sup>2</sup> found, in 71 young individuals without functional impairment of the kidney and who had hypertension, renal abnormalities in 50 of them, about one-half having some form of vascular obstruction. The urologists are of the opinion that there are a goodly number of hypertensive individuals who could be relieved by a thorough study of their urinary tract. In another investigation these same two authors<sup>3</sup> studied 218 patients who had hypertension; 56 of

1. Blackman, S. S. Jr.: Arteriosclerosis and partial obstruction of the main renal arteries in association with "essential" hypertension in man, *Bull. Johns Hop. Hosp.*, 65:353, 1939.

2. Schroeder, H. A., and Steele, J. M.: Abnormalities in the urinary tract in "essential hypertension," *Proc. Soc. Exper. Biol. & Med.*, 39:107, 1938.

3. Schroeder, H. A., and Steele, J. M.: Studies on "essential" hypertension; I. Classification, *Arch. Int. Med.*, 64:927, 1939.

them could be classified in a so-called renal group. Other similar studies have appeared elsewhere. The conclusion seems to be, as expressed by McCann,<sup>4</sup> that probably 80-85 per cent of the instances of hypertension depend on atheromatous areas in the larger

arteries at or near the aorta and that in some 15-20 per cent of these patients the trouble is due to unsuspected disorders of the kidneys or the urinary passages.

4. McCann, Wm. S.: Bright's disease: A review of recent literature, *Arch. Int. Med.*, 65:639, 1940.

---

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### MERCY HOSPITAL—SONIAT MEMORIAL New Orleans

The monthly meeting of the Medical Staff of Mercy Hospital was held on March 6, 1940 at 8:00 p. m. in the Lecture Room of the Hospital. A symposium on influenza and pneumonia was presented, which included: "Observations on the Present Influenza," by Dr. L. A. Monte; "Complications Resulting from Influenza," by Dr. Oscar Blitz; "Treatment of Pneumonia," by Dr. Edgar Hull.

A mortality case of lobar pneumonia taken from the records of the month was then presented by Dr. J. A. Vella and further discussed by Drs. Monte and Hull. The meeting was a most interesting one and was very well attended.

Percy A. Phillips, M. D., Sec.

---

### TOURO INFIRMARY New Orleans

A regular meeting of the Medical Staff of Touro Infirmary was held on Wednesday, March 13 at 8 p. m. The following program was presented: "Blood Transfusion," by Dr. Nelson Murray; "Miller-Abbott Tube in the Treatment of Paralytic Ileus and Intestinal Obstruction" by Dr. M. L. Michel; "Survey of Pneumonia Cases in Touro Infirmary for the Year 1939" by Dr. Allan M. Goldman; "Postoperative Complications of Gynecologic Patients" by Dr. Albert P. Kimball.

---

### HOTEL DIEU New Orleans

The regular monthly meeting of Hotel Dieu Staff was held Monday, March 18, 1940 at 8:00 p. m., in the assembly room of Hotel Dieu. Dr. L. A. LeDoux, President of the Staff, presided and Dr. C. E. Gorman, Secretary, was at the desk.

The meeting was opened with a clinico-pathologic conference by the Department of Pathology. Three cases were presented.

Dr. E. A. Socola presented two cases of intussusception; one surgical and one reduced manually under fluoroscope.

A dissertation upon the recent advances in urology was given by Dr. H. Lindner.

Dr. H. R. Unsworth presented the following case report:

#### HYPERINSULINISM

F. R., aged 24, visited my office on March 18, 1934, professionally, because he was having as he stated "fits." He also remarked that the doctors at the Charity Hospital had seen him several times and told him that he was an epileptic. He was given some medicine to take regularly, advised to keep his bowels open and a diet containing a great deal of fats was recommended. He was warned to be careful about driving an automobile, or in placing himself in any position where he might seriously injure himself due to the "spells" that unexpectedly overtook him. It was further related to me by the patient that he had a blood test and urinalysis with this superficial examination, and after a few clinic visits he was labeled an epileptic, which disturbed him greatly. He abandoned his position as an employee on the wharfs of the city docks. At all times he was apprehensive, and worried greatly about his sickness, having a vague understanding of the term epilepsy. There was also associated a constant moderate depression. At the time of his visit to me he was dejected and hopeless in regard to the future.

*Family History:* Irrelevant; there being no convulsions, injuries, or any neuropathic conditions as far as he or his mother knew.

*Birth History:* He was the second child, delivery being normal in all respects, and his infancy considered normal, that is, he walked, talked and teethed at the usual period.

*Personal History:* There is no history of illnesses, injuries or operations.

*Present Illness:* While getting out of bed the morning of July 2, 1934, he was seized with a generalized convulsion, and immediately became unconscious. There had been no warning or previous evidence of impending illness at any time. He soon recovered from this episode, and at a period of approximately two weeks felt as well as he ever had. These spells, as he called them, periodically returned approximately three weeks apart.

On March 22, 1935 this patient was immediately admitted to the hospital for observation and study. During the period of three days which he re-



mained, there were no convulsions or any other usual medical phenomena. Medically, there was nothing of importance to account for his convulsions as far as the ordinary medical examination revealed. Neurologically, the nervous system presented no pathologic findings; from the standpoint of the clinical laboratory the reports of his sera were essentially normal, including the spinal fluid findings, except for a blood sugar of 35 mg. per 100 c. c. of blood after fasting twelve hours. This test was repeated on three separate occasions on a twelve hour fast, and at no time did the blood sugar reach higher than 40 mg. per 100 c. c. of blood. The tentative diagnosis at this time was hyperinsulinism, hypoglycemia with convulsive seizures. After making a few visits to my office, following his hospital period when a diagnosis was made, and at which time therapy was given, he failed to return to see me.

On March 10, 1935, he was admitted to the Charity Hospital in the state of status epilepticus. His blood sugar reading at this time was 30 mg. of sugar for 100 c. c. of blood. In spite of all that could be done for him he continued to have repeated convulsions and died in the state of status epilepticus, August 22, 1935. An autopsy revealed an adenoma of the tail of the pancreas, and the autopsy diagnosis was that of adenoma of pancreas with hyperinsulinism.

Dr. Albert A. Maybeno presented the following case report:

#### ACUTE LYMPHOCYTIC LEUKEMIA IN EARLY LIFE

This case is reported in order to recall that leukemias do occur in the young, although with much less frequency than observed in older children and in adults. Because of this fact, Dr. Socola and I felt it would be interesting to report the case of a young patient seen in private practice.

R. H. F., a white female, 17 months of age, was observed to exhibit a gradually increasing weakness of both legs for five days. Also, an enlarged gland in the right groin had been noted during this time. The child appeared dull and she became increasingly pale. The symptomatology was otherwise essentially negative.

This child was a full term, normal delivery, without any birth injuries. The delivery was satisfactorily conducted in one of the private hospitals of New Orleans. There was no evidence of any abnormality in the newborn period. Breast feeding was given for the first three months of life, lactogen alone given for five months, following which cow's milk was begun, gradually adding other items to the diet. Teething was normal. No immunization of any kind had been given until the time of the first visit. The family history revealed nothing of note. There were no brothers or sisters.

The patient was well developed, length 32½, head 18, chest 19½, and abdomen 18 inches. The weight was approximately normal for the age, and normal in the height-weight relationship. The temperature was 100.6° F. by rectum when first seen, the patient not being acutely ill. She was pale, almost wax-like, and obviously dull. There were marked ecchymotic areas, multiple in character over the extremities, and numerous petechiae about the face. The petechiae increased in number as the child continued to cry. The right inguinal glands and the left posterior auricular glands were definitely palpable. There was no ulceration in the throat or in the pharynx. Bowel movements and urination were normal. Likewise, no edema and no skin eruptions were present. Any difficulty or weakness in walking could not be demonstrated, due to lack of cooperation. The spleen could not be palpated.

The examination of the blood revealed the following: Hemoglobin 50 per cent, red blood cells 2,500,000, white blood cells 56,250, and the differential showed lymphocytes 90 per cent, metamyelocytes 3 per cent, eosinophils 1 per cent, and monocytes 2 per cent. There were no neutrophils seen in the smear. Coagulation time was 4 minutes and the bleeding time was prolonged 30 minutes plus.

The patient was admitted to the hospital on August 8, 1939, at which time the rectal temperature was 101° F., and the blood picture was as follows: Red blood cells 2,600,000, white blood cells 53,850, hemoglobin 50 per cent, and the differential showed, lymphocytes 82 per cent, lymphoblasts 17 per cent, neutrophils 1 per cent, segmented 1 per cent. The color index was 0.9; platelets 10,000. Condition unchanged. The coagulation time was 3 minutes and the bleeding time 13(?) minutes. This same day the patient was given koagamin 1 c. c., viosterol, 18 drops daily, dicalcium phosphate grains 30 twice a day. The patient was also matched for a transfusion.

On August 9, the blood count was reported as follows: Red blood cells 2,650,000, white blood cells 33,500, hemoglobin 50 per cent; differential showed lymphocytes 85 per cent, lymphoblasts 15 per cent. The temperature had risen to 104.6° F. She was given a transfusion of 150 c. c. of citrated blood, and her general condition appeared somewhat stronger. The koagamin was repeated on this date.

The following day, the blood count showed 3,560,000 red blood cells, 16,500 white blood cells, hemoglobin 50 per cent, lymphocytes 79 per cent and lymphoblasts 21 per cent. The coagulation time was 5 minutes, 45 seconds; bleeding time was 4 minutes. The temperature was 105° F. X-ray report was negative for active bone pathology, but the report made mention of healed rachitic changes.

On August 11, the red blood count was 2,850,000, white blood cells 11,500, hemoglobin 55 per cent, lymphocytes 55 per cent and lymphoblasts 45 per cent. The temperature was now 105.4° F., and the patient very restless.

The next day the red blood cells had fallen to 1,930,000, the white blood cells were down to 1,000, hemoglobin 40 per cent. The differential showed lymphocytes 20 per cent and lymphoblasts 80 per cent. The temperature on this day was 103.8° F. The platelets were not sufficient to be counted, the coagulation time was 5 minutes and the bleeding time was 4 minutes. Later during this day (August 12), she became comatose, and the following is an abstract of the resident's notes: "Patient is in a comatose state. Respiration is stertorous and difficult. She is very restless and making attempts as if to dislodge something from her throat. Coarse rales are heard over both lungs, making the heart sounds inaudible. Patient was given coramine, 3 minims; at 3 a. m. she is still comatose, restless, and showing the same difficult respiration. The right lower extremity is stiff, and there are ecchymotic patches on both conjunctivae. The skin shows capillary bleeding and is acquiring a yellowish tinge. The pulse is no longer palpable at the wrist. Expired at 4:35 a. m."

HUTCHINSON MEMORIAL CLINIC  
OF THE  
SCHOOL OF MEDICINE

THE TULANE UNIVERSITY OF LOUISIANA  
New Orleans

Scientific Session, with presentation of cases, conducted by the Department of Medicine, Division of Psychiatry, Dr. T. A. Watters presiding.

*Reading Disability* (Miss Marion McKenzie Font): Reading disability may occur in conjunction with almost any known behavior disorder of childhood. The particular behavior disorder which a child shows is often the direct result of reading disability. This can be readily understood by a consideration of what reading disability means. It is inability to read, despite school attendance and classroom instruction, and despite a mental age that is adequate for the comprehension of reading. In other words, reading disability is a marked discrepancy between intelligence and reading achievement.

Reading disability is often found in very bright children, and may occur at any level of intelligence, from high grade moron to very superior. The incidence of reading disability is three times as great among boys as among girls; and a conservative estimate places 12 per cent of the general population among those with some measure of reading disability.

A child who does not learn to read may be mistaken by his teacher for a mentally defective

child, and so treated, with results that are often disastrous to the child's personality. One of the most difficult cases in the adult psychiatric clinic was that of a young woman with a reading disability, who was mistakenly diagnosed as mentally defective in childhood and was treated as a mentally defective individual by her family and associates.

A child may sometimes successfully conceal his inability to read by memorizing the entire first grade reader. The teacher may be quite unaware of his disability and may promote him to the second grade. From this point on, however, further progress is blocked unless the reading disability is recognized and remedial instruction in reading is begun, for it is impossible for any child to memorize the reading lessons of the second grade and the higher grades.

A child with reading disability must be taught individually by special methods adapted to his particular difficulties. Without these special methods, a child such as we have been discussing will repeat the second grade several times, and may then be placed in the next grade where the same repeated failure will be experienced. The final result for this child may be placement in a special class for defectives despite the fact that he has a normal intelligence quotient. Another possibility is that such a child may leave school as soon as he is old enough to do so, without having advanced beyond the second or third grade, without having learned to read and write, and without being equipped to earn his living. Such persons often develop antisocial behavior in later life.

The entire problem of reading disability is bound up with that of individual difference, and these individual differences will determine a particular child's reaction to his reading disability. He is reacting to repeated failure, represented by the reading situation, and the reaction may be expressed in various ways:

1. *Aggression*: In this type of reaction the child develops antagonism towards playmates, teachers, school, perhaps even toward parents and siblings. There may be constant fighting and the antagonism is sometimes transferred in later life to society in general.

2. *Withdrawal*: The child may become introverted to the extent that he withdraws not only from the reading situation, but from participation in any activity. He may live in a dream world of his own fancy to such an extent as to provide the setting for the development of a more serious type of behavior disorder in later life; perhaps in early adolescence.

3. *Defeat*: In this reaction the child gives up altogether; loses self confidence; develops feelings of inferiority.

4. *Tension*: The child becomes nervous, cries easily, develops many fears and reacts toward the school situation with apprehension and dread.

5. *Compensation*: In this type of reaction some other skill is developed, such as ability in athletics, drawing, or arithmetic, and success along these lines compensates for failure in reading.

Remedial reading instruction is hindered by these problems, and cannot be successful unless they are understood and treated, along with the reading disability. Both diagnosis and treatment of reading disability must be individualized. There is no one cause for reading disability. In every case it is a combination of causes, and the same combination operating to cause disability in one child may be present in another child without affecting in any way whatsoever his ability to read.

Just as there is no one cause, there is no one plan of treatment for these cases. Remedial measures are planned very carefully after a thorough case study of the child; and are based on all the known factors in his physical make-up, emotional make-up, school and home environment, and all other relationships in which he is concerned.

Some of the points mentioned in regard to reading disability may be illustrated by a case still actively in our child psychiatric clinic.

#### CASE REPORT

J. A. was referred to the child psychiatry clinic two years ago by the school principal, as a child failing in his class work and having particular difficulty with reading. There were no behavior problems mentioned, but the school considered him very dull and perhaps mentally defective. On the basis of psychologic testing, J. A. was found to have high average of intelligence, together with a very serious reading disability. His arithmetic achievement was third grade level, but reading ability was low first grade level. His older brother did very well in reading, and there was some indication of antagonism between the two boys.

Remedial instruction was begun and has been continued for a total of about 30 hours over the two year period. Because of this instruction he has made his grade each year and is now in the fifth grade with third grade reading ability.

As the remedial instruction progressed various indications of behavior difficulties were noted. He was involved in two episodes of petty thefts. He has developed a habit of crying without provocation, seems to have developed some inferiority feelings, and seems to crave affection which his mother is unable to display. He is very quiet and reticent and difficult to draw out. It was learned that a very unhappy home situation existed. The parents had never made a good marital adjustment, were unhappy together, and both were emotionally unstable. Dr. Hamann persuaded the

mother to enroll in our adult psychiatry clinic as a patient, and she has seemed to derive considerable help from doing so. She, like J. A., is reticent, sensitive, and undemonstrative.

The home situation seems to be a definite and important factor in J. A.'s problems. In addition to the home factor, other contributing factors to his reading disability are the following:

1. *Poor foundation in reading caused by long absences during the first year of school*: Instead of repeating the grade he was promoted without having learned to read and was unable to do the work of the second grade.

2. *Lack of recognition and understanding of his disability by his parents and teachers*: He was frequently punished for not doing better school work in the lower grades, and it was not realized that he had a reading disability.

3. *Visual difficulty*: He did not receive glasses until he had been in school for several years. Visual difficulty is still a factor in the case.

4. *Other physical problems*: These have played a part in his difficulty. One physical factor, of which we were unaware was only recently discovered by the department of preventive medicine.

Both remedial reading instruction and psychiatric treatment were directed toward preventing J. A. from developing either the withdrawal type of reaction or the defeat reaction. He had shown some tendencies along both lines, but we think treatment has been successful in preventing the actual development of these types of behavior.

This case of J. A. illustrates the complexity of factors involved in any case of reading disability. It also illustrates the long-time treatment that is necessary for such patients. Although he has received 30 hours of remedial reading instruction, this is not sufficient to counteract the effect of lack of understanding and of inappropriate instruction that had existed for more than five years.

*Clinical Syndromes of Pathologic Sleep* (Dr. L. A. Golden): The peculiar varieties of pathologic sleep can best be appreciated if the characteristics of normal sleep are first briefly reviewed. Normal sleep is characterized chiefly by cessation of reactivity to events in the environment, increased threshold for all forms of sensory stimuli and reflex irritability, and easy restoration from sleep to wakefulness.

The intimate inter-relationship of the vegetative nervous system and normal sleep is clearly seen in the autonomic changes that occur in sleep. There is a slight rise in temperature, lowering of the blood pressure, slowing of the pulse, diminution of the basal metabolic rate and miosis. A drop in the calcium level and diminution of the muscle tone also occurs.

A clear understanding of the mechanism of sleep is still lacking, but we recognize it as one

of the numerous functions regulated by the hypothalamus, an extremely small structure weighing only four grams. Ingram, in a recent review of 399 publications on hypothalamic experiments, states that from a maze of conflicting data abundant evidence emerges that stimulation of the hypothalamus in the posterior and possibly the lateral areas results in reactions which are largely sympathetic in nature. Stimulation of the hypothalamic area has produced such responses as struggling and clawing, intense emotional activity with pupillary dilatation, erection of hair, struggling and spitting. Parasympathetic responses may also be elicited from anterior areas to include depression of blood pressure, miosis, and slowing of respiration.

There is also abundant evidence to suggest that temperature regulation, energy metabolism, salt metabolism, diuretic control and carbohydrate metabolism are all controlled from this area. Hypothalamic lesions have their effect also on ovulation, parturition and the reproduction cycle. Finally, the interaction of cortical and hypothalamic forces influences emotional pattern and sleep. Hypothalamic lesions have frequently resulted in somnolence. Clinical examples of disturbance in this sleep regulatory function of the hypothalamus stimulated this present report of two cases.

The evidence that the hypothalamus is concerned in the regulation of sleep has been overwhelming and is derived from experiences with epidemic encephalitis, tumors affecting the region of the third ventricle, direct electrical stimulation of these areas and experiments with calcium chloride and potassium chloride injections into the cistern or ventricle.

Pathologic sleep often occurs in the form of attacks of irresistible sleep under conditions which normally favor a state of wakefulness. A well recognized syndrome of such pathologic sleep is known as narcolepsy. A patient suffering from this disorder is subject to attacks of sleep, drowsiness or trance-like states which are difficult for the patient to control. Consciousness may be lost, but at times the patient may hear everything that goes on about him. The attacks of extreme sleep occur at any time, such as during the acts of eating, dancing, working, walking or conversation. Narcolepsy is often associated with a closely allied disturbance of tone in the muscular system, known as cataplexy. This may vary from simple weakness in the knees to transient attacks of complete atonia or weakness and staggering.

The "narcoleptic" attacks as described in the literature seldom last more than a few minutes. The sudden loss of tone which may occur with the narcoleptic syndrome may develop under the stress of emotion as laughing, anger, or excitement. The individual then suffers a dissolution of posture, the lower eyelids, jaw and head droop, the lids sag and the patient may fall to the ground

and even injure himself. Unable to speak, he may find that consciousness is retained. These sudden seizures of tonelessness under stress of emotion are thought to be related to the weakness felt on excessive hearty laughter or emotion in the normal person.

Levine has suggested a close relationship between this atonic condition and narcolepsy in his observations on sleep paralysis, a state of temporary tonelessness preceding or following sleep in which the patient finds himself unable to move a muscle. Adis believes that narcolepsy, cataplexy and sleep paralysis are all due to "inhibition" acting on different parts of the central nervous system.

Pathologic sleep has been noted following epidemic encephalitis, trypanosomiasis, soporific drugs, hysteria, tumors and vascular lesions involving these subcortical areas. In many cases the etiology cannot be demonstrated and we are forced, as in some cases of epilepsy, to call such pathologic sleep "idiopathic narcolepsy." Wilson's classification is satisfactory for clinical purposes. He divides the syndrome into:

1. Recurring attacks of sleep with:
  - (a) Attacks of tonelessness (cataplexy);
  - (b) Without tonelessness.
2. Sleep attacks of continuous duration:
  - (a) Day and night slumbers merging into continuous sleep;
  - (b) Continuous sleep lasting for weeks, months or years.

In the narcoleptic syndrome the patient usually falls asleep gradually, the head lowers on the neck, the muscles relax gently and the head drops. The eyelids close, breathing becomes slow, irregular, and the pulse is slowed. There is no alteration of color. The body may fall to the floor or sprawl in the chair. Reflexes are usually quite normal, the pupils react to light and forcing the lids open reveals that the eyes are rolled up in Bell's position. Awakening is easy by slight noises, such as slamming a door or calling the name. The voice may be husky and considerable effort is exerted to look at the examiner or maintain a conversation.

Grinker states that only some 36 cases of narcolepsy with cataplexy had appeared in the literature up to 1937. This number is low when compared to the cases appearing in the more recent literature.

The treatment of pathologic sleep has often been unsatisfactory and until recently, no treatment was available. With the introduction of ephedrine it was possible to prevent attacks of sleep in a moderate number of cases and benzedrine sulphate, introduced in the past three years, has aided an additional number. In many cases neither of the drugs has been of much avail.

I am presenting tonight two examples of pathologic sleep of the idiopathic type. The first one

presents a clinical picture of pathologic sleep which has not been described in the literature as far as I have been able to ascertain. The second case illustrates the usual clinical syndrome of "narcolepsy and cataplexy." In both cases "sleep paralysis" as described by Levine also appeared on occasion. Case number one is of additional interest because prostigmine sulphate was used in the treatment apparently for the first time.

#### CASE REPORT NO. 1

The patient, M. W., a slender young woman of 21, appearing somewhat listless and mildly drowsy in her manner, complains in a soft, tired voice as follows:

"I suddenly get sleepy and tired, I feel like I am going into a trance, in a haze, but I am not particularly worried and everything seems all right. All my limbs seem to be affected equally. I have sometimes fallen asleep and fallen right out of a chair while eating. Nearly all of my attacks last several hours. I can tell you everything that happens during the attack, but I seem to be unable to pull myself together and talk or answer questions. My head feels very heavy. Sometimes it is only sleepiness and weakness, other times it is sleepiness and complete inability to move my muscles. Often my eyes feel like they are crossing and I see double."

*Past History:* The patient was born in a Southern city and has had the usual childhood diseases without any serious complications. She went to school and successfully completed high school education. Neither she nor her parents feel that she has ever shown any undue anxiety or nervousness. She apparently has led a perfectly normal life, being fond of all sorts of sports and social events. She has had many friends and until her present illness was seldom ill. Careful inquiry failed to reveal any suspicious history or encephalitis. The attacks of measles, scarlet fever and mumps which occurred during childhood were of short duration and without complications. She began work at the age of 16, as a salesgirl. She married at the age of 17, but divorced her husband three years later due to incompatibility. There has been no history of any headaches or paralysis.

*Present Illness:* Until two years ago the patient states that she felt quite well. However, one day while on the street-car going to her work as a clerk in a department store she suddenly became very sleepy, went limp all over and collapsed in the seat. She was taken to a hospital where she was kept under observation for four days. About the fourth day she got over her sleepiness and her limp state and returned home. The second attack came several months later and it again occurred in the morning on the way to work, but had worn off before she eventually got downtown. That night, however, when she arrived home she gradually began to feel very sleepy, tired and heavy.

She went to bed and woke the following morning feeling quite well. Since then she has had attacks, at irregular intervals, of sudden sleep accompanied by tonelessness occurring on the streets, at home, in automobiles and many other circumstances in which she suddenly collapses and crumples up in a heap. Often after a short period of fifteen or twenty minutes she begins to feel better. At times these attacks have lasted for several days. Occasionally she has attempted to fight off the feeling of sleepiness and has sometimes been apparently successful in preventing them. In spite of these attacks she continued to work until they became so frequent that she had to stop.

*Treatment:* Following her first attack two years ago she was seen in consultation by Dr. G. C. Anderson who made the diagnosis of narcolepsy and put her on ephedrine. With moderate doses of ephedrine she improved for a long period. During a visit to Mexico she began to feel so well that she stopped taking the ephedrine. Following her return home, however, she again began to have these attacks. She was placed on benzedrine sulphate, 20 mg. daily, morning and noon, which however, did not prevent her attacks. On three occasions she was carried into my office apparently asleep and cataplectic. On the first occasion I injected subcutaneously 1 c. c. of 1-4,000 prostigmine sulphate. There was no response on the part of the patient for an hour. At the end of an hour I repeated the dose and sent her home. Subsequently she reported that about a half hour after she arrived home she suddenly seemed to wake up and the strength and tone return to the limbs. She remarked that this was unusual since many of her attacks lasted for hours. She was placed on prostigmine sulphate tablets, one three times daily. She returned, however, the next week in another attack of complete narcolepsy with cataplexy and was carried in by several friends. On this occasion her mother and aunt, who had witnessed the sudden revival last week following her prostigmine sulphate injection, requested that I give her some of the same medicine. On this occasion I used the 1-2,000 solution and injected it intramuscularly into the hip. In five minutes the patient quickly recovered. She stated that this was the first time that an attack had been terminated so quickly. In describing her feeling following injection, she stated that very slowly she began to feel less sleepy and stronger so that she could open her eyelids without much trouble and move her head on her pillow, and in a few minutes she felt her normal strength coming back into her arms and legs. She found she was able to walk perfectly well at the end of about five minutes. She was then placed on prostigmine sulphate 30 mg., three times daily, and has continued to feel fine since that last occasion. The fact that an injection of prostigmine sulphate pro-

duced unusually quick relief of symptoms in this patient suggested the possibility that prostigmine sulphate may turn out to be of value in this condition as well in myasthenia gravis. It seems difficult to explain the results of prostigmine sulphate in this patient with narcolepsy and cataplexy in the manner in which Foster Kennedy and Alexander Wolf explained its action in myasthenia gravis. In the latter disease the site of the disorder is agreed upon at present to be at the myoneuronal junction, while the symptomatology of narcolepsy with cataplexy suggests disturbance in the hypothalamic region. The authors state that in myasthenia gravis prostigmine facilitates the action of the "vagus stuff." It is possible that prostigmine exerts its influence not at the myoneuronal junction as in myasthenia, but at the site of the vegetative centers in the hypothalamus. It is obvious that more observation is necessary of the effect of prostigmine sulphate in narcolepsy and cataplexy. After three months of prostigmine therapy, I was forced to put her back on benzedrine sulphate and ephedrine, as the prostigmine had apparently ceased to be useful. On six benzedrine sulphate tablets of 10 mg. each, and three  $\frac{3}{4}$  gram ephedrine sulphate capsules, she succeeded in remaining free from attacks.

#### CASE REPORT NO. 2

A. P., a man of 38, a private investigator by profession, has been suffering for nine years from attacks of overpowering drowsiness and sleep. He has had several attacks daily, occurring at such awkward moments that they seriously interfere with his work. In addition, he complains of sudden "weakness" under emotional stress. He represents the usual type of narcolepsy described most often in the literature. He is of special interest because a sister has similar attacks. His complaints are as follows:

"It comes over me at any time, regardless of what I do, while moving, standing, reading. As soon as I have a sleepy spell, I feel like I'm in a dream. I become very sleepy playing cards and nothing seems to have any effect. They seem overpowering when they strike me. I feel better after five or ten minutes, then I'm again wide awake. Sometimes I don't realize that I have fallen asleep, and the next thing I know I am waking up. I have wrecked a car several times, but was drinking. It seems like alcohol precipitates a spell. They usually occur close to 11:00, but can come on any time.

"Something humorous produces a momentary sudden weakness. If it is something funny, I feel I may fall, but the spell is over too quickly. It is the same with anger, if I'm riled it seems I get one weakness after another, repeatedly.

"In these daily overpowering sleep attacks, I at once go into a dreamy state. I am depressed easily, and am emotional about lots of things."

*Past History:* He was born in New Orleans, the only boy and the youngest of six children. He was puny in childhood and has always suffered from headaches "attributed to stomach trouble."

He has been self-conscious about "acne" on face and one testicle was undeveloped at birth. He played with children and was not seclusive. He has been a private investigator for about fifteen years.

One sister was committed to De Paul Sanitarium; now fully recovered. She was "very religious." He has one sister very much overweight who has the same overpowering sleepiness. She also falls asleep in card games, while eating, or riding in street cars. No epilepsy in family known. Neurologic examination was negative. Physical examination by an internist was negative.

*Treatment:* On three capsules of ephedrine sulphate ( $\frac{3}{8}$  grains each), he has successfully maintained his normal wakefulness, and has had no toneless attacks. His response to treatment was quick and very satisfactory as he is now enabled to do his work well, and without fear of attacks.

#### SUMMARY

Two cases have been presented as examples of disturbance in hypothalamic function, resulting in pathologic sleep, and alteration of muscular tone.

The temporary value of prostigmine sulphate in case one suggests need for further study of its use in narcolepsy and cataplexy.

The necessity of using large amounts of benzedrine sulphate to prevent such attacks raises the question as to the possibility of serious changes from the continued use of the drug. It is interesting that, despite these large doses of benzedrine sulphate, normal night sleep is not interfered with. This contrasts with the complaints of sleeplessness by people who take benzedrine sulphate in the afternoon or evening for other conditions and in far smaller amounts. The significance and interpretation of such differences must await further investigation.

*Some Observations on a Case of Alcoholism* (Dr. H. L. MacKinnon): An intelligent, cheerful, robust, married, young man entered the Hutchinson Memorial Neuropsychiatric Clinic on January 30, 1940. He sought help in alleviating his increasing alcoholic indulgence and his overwhelming desire to drink. He readily agreed to total abstinence while under our observation.

No physical or neurologic abnormalities were noted, and the laboratory findings were within normal limits. During the course of eight visits, at which he reported faithfully with no delinquencies, the following story was gradually unraveled.

When the patient was four years old his mother and father were separated. He had always been instructed to tell others that his father had died, but he knew this was not true. He resented considerably the bragging of the other fellows about

their fathers. He remembers well that he would "pick" many fights with his schoolmates, and that as a rule he would get the worst of them. Occasionally, he fought with larger girls and received thrashings from them. The more he was beaten the more determined he was to get revenge and "lick" the other fellows.

At about the age of ten, he began to demand things of his mother. If refused, he became quite antagonistic. Often he would tell her that she was responsible for his father having left her, that she did not understand men or boys. He knew that this was one way to get what he wanted.

The patient started drinking while in high school, at the age of sixteen. At first, alcohol made him quite sick and he looked up to his schoolmates who could "take it like men." He was proud of his achievement the first time he did not become sick.

At 25 he married a divorced woman, who had a five year old child. She accompanied him on many of his bouts, but stopped her own drinking when she became pregnant some two years afterward, and she has not since indulged to any appreciable extent.

For the past few years the patient has been drinking quite heavily several nights a week. He states he would usually feel an overwhelming desire to drink but he always felt he would stop after a few drinks. He never did, however, always consuming twice as much as any of his friends. Only on rare occasions would he drink by himself, and apparently he has not felt the need of a morning "pick-up."

The patient states that he has only taken drinks once since coming to the clinic, and that on this occasion he became sick and vomited after three drinks. He says that he has felt better, and that he has more confidence in himself. He noticed that he began to take more interest in his business and the courses he is taking in Commercial Law and Public Speaking. Furthermore, he has begun to pay off debts which he had accumulated. Of course, to predict any eventual outcome would be mere speculation.

There was, in this patient, an early and bitter antagonism connected with the loss of his father. He was jealous of other boys who had fathers and resented this even to the point of actually fighting with them. There was a similar envy of those high school classmates who could "hold their liquor" and who were famous for their escapades. To drown his own inferiority, he sought a means to emulate them. Thus, he soon became accustomed to drinking twice as much as anyone else.

Such a reaction follows rather closely the pattern Dr. Karl Menninger has expressed in regard to chronic alcoholism which he has very aptly referred to as a form of slow suicide. He points out that to the alcoholic, alcoholism is the lesser of two evils in that it keeps him from realizing

his inward, hidden antagonism. He believes that such individuals are neurotic, that they have become "fixed" on an infantile plane and that there is usually an overdeveloped attachment to the mother.

Diethelm states that "A patient should be considered a chronic alcoholic when he harms himself or his family through the use of alcohol and cannot be made to realize it, or when he no longer has the will or strength to overcome his habit." Other definitions of the alcoholic are based on accounts of liquor consumed, or on the length of time of indulgence, or on the results manifested by continued use of the toxic agent. Strecker distinguishes the "normal" drinker who drinks to make a pleasurable reality more pleasant from the "abnormal drinker" who drinks to escape from a painful reality. Whatever the definition, most authorities agree that alcoholism is a symptom of an inward conflict or neurosis.

The treatment of alcoholics in the acute stage can be accomplished in an institution. After withdrawal of the drug, supportive measures are indicated. Fluids, intravenous glucose, vitamins, and salt are helpful. Spinal punctures with reduction of increased pressure are sometimes performed. Continuous tub baths are preferable to straight jackets and similar means of restraint. If sedatives are needed, the less toxic ones such as paraldehyde are best. Usually, the patient will be clear in 48 hours after such a regimen is instituted.

To discharge a patient at this point would be like releasing a syphilitic after the chancre had disappeared, or like arresting a case of acute poliomyelitis and paying no attention to the residual paralyses. Several months to a year or more, filled with therapeutic interview, psychoanalytic or otherwise, are necessary to work out the causative agents underlying the disease of which alcoholism is the manifest symptom. And even then, the prognosis for the majority of those individuals is poor although perhaps a fourth of them are "cured."

In the final analysis, alcoholism is probably too heavy a burden for the shoulders of the physician. It is true that he could be helped by measures which would aid in prevention and control. Early recognition and the realization of the need for treatment would be quite valuable, but these are social as well as medical problems.

*The Meaning of Symptoms* (Dr. J. M. Wallner): I had hoped to discuss schizophrenia tonight with emphasis upon early diagnostic criteria, but learned only three hours ago that the patient I wished to present could not appear. I would like, therefore, to postpone such discussion until a later occasion, when case demonstration may be available. This patient did present a complaint, however, which suggested a subject worth mentioning here, namely, the meaning of symptoms. I

believe that the physician should constantly keep in mind the significance of symptoms not only with respect to the organs implicated, but also with respect to the persons. The questions, do the symptoms offer the individual any relief from unpleasant tasks or stresses, do they increase the attention and sympathy shown him, do they help avoid reality or lessen responsibility, often shed light upon situational or emotional factors that loom large as etiologic or precipitating agents in the illness.

In our patient, for example, suddenly failing vision first brought him to a physician, and then to the clinic. No organic pathology could be demonstrated, and the vision cleared rapidly during initial studies. When we consider the setting in which this symptom developed it becomes more intelligible to us. He is an 18 year old white boy, of good family, described by his mother as withdrawn, timid, and interested in drawing, music, and reading. In 1939 he graduated from high school and entered Tulane University. In a month he had been in and out of two schools of the University and was advised to enter Delgado Trade School. Because of his interest in drawing, he studied draughtsmanship but did so poorly that he was advised to consider another course. He had always taken pride in his "talent" for drawing and this was quite a blow to him. Faced then, with the evidence of inability, but convinced of his "talent", his failing vision proved a temporary compromise to his dilemma, and furnished an excuse for his failure. Further studies and his subsequent course established the diagnosis of schizophrenia, with hysterical features.

We see numerous examples of similar symptom formation in absence of organic pathology in our patients. For example, a ten year old white girl was brought to a clinic because of increasing inability to read, of a year's duration. There was obvious discrepancy in her sight when tested, and when casually observed, the visual fields demonstrated tubular vision. Plain glasses were offered with a suggestion of benefit resulting immediately in normal fields and 20/20 vision. The symptoms were found to mimic the marked myopia of her father, and date from shortly after the beginning of the school year. She was one of two children in the fifth grade of a one-room country school, and there was a spirited rivalry between them. She was very disappointed the year prior in being surpassed by the boy, as she had studied throughout the summer vacation to be better prepared for the fifth grade. When the first reports came out indicating she was still inferior to him, she became more tense, nervous, irritable, and began to complain in school of failing vision, which progressed to the point of complete inability to read. Factors beyond our control militated against causal therapy in this case, but sugges-

tion and advice to the family sufficed to render her symptom free for the past year.

In the spring of 1936, a 19 year old white girl in her second year in college, was admitted to the Colorado General Hospital in Denver with the diagnosis of inoperable brain tumor. For the previous six weeks she had been bedfast, unresponsive, incontinent and mute. She lay in flexion, on her right side, with eyes rolled up and out, and life was maintained by nasal and intravenous feedings. Careful study failed to demonstrate organic signs, and definite hysterical components were noted in the picture presented. She was told that all findings were negative, that she had no brain tumor, that a graduated program would enable her to eat the second day, to sit up the third day, and walk on the fifth. She came through on schedule, within a week was in full activity on the ward, and looked forward to return to college.

What did an illness of such magnitude mean to this girl? She was one of twins, raised since infancy by a Victorian grandmother, who ruled with a very firm hand. The girls, although in a University town, were forbidden the normal participation in play and later in the social life of their neighbors and classmates. The one twin, the more outspoken of the two, finally frankly rebelled, left home at the age of 16, and is successfully supporting herself in Ohio. Our patient, torn between love for sister and obligation to grandmother, continued at home, although with increasing tension and depressive spells. She often contemplated running away, more frequently she considered suicide. A recent situation, in which participation in college activities was forbidden by the grandmother, precipitated the marked withdrawal and regressive phenomena which resulted in the picture of apparent brain tumor. The patient admitted her difficulties with mixed feelings, alternating expressions of duty and obligation to grandmother with marked resentment and even hatred for her puritanical views and the separation of the twins. The patient has since completed her studies, is teaching school, and has been symptom free for almost four years.

The stomach ache of the boy who has failed to prepare his lessons, the examination diarrhea of students, the palpitation and dry mouth of the young speaker, are commonly accepted examples of physiologic repercussions to emotional stress. We should not overlook similar reactions, although widesweeping and severe, in those of our patients in whom the findings do not adequately account for the gastric or cardiac symptoms. It is not enough to dismiss such a patient with the statement that "there is nothing wrong with you" or "it's your imagination." There is something wrong, otherwise the patient would not come to the physician. Nor is it enough to suggest that the symptoms will disappear, or to prescribe some



simple medication with that suggestion. Such symptomatic therapy, while it may remove the presenting symptom, does nothing to the underlying psychopathology, and leaves open the door for further complaints in the face of continued or additional problems. Of no little harm is the fact that such therapy often helps establish the patient's conviction that he must have organic disease, otherwise medication would not be prescribed. Witness the patient of 38 who still vividly recalls his first attack of palpitation at the age of 19, while reading; his relief at being told by his physician that his heart was normal, and his concern when, nevertheless, he was given a prescription to take for his heart. The next 19 years saw a stream of visits to physicians and hospitals, to allay his cardiac symptoms. His anxiety state by no means began with that incident, but much of what happened thereafter might have been prevented if time had been taken to correlate the complaint with some of the patient's previous experiences and feelings. At the age of 38 it took six weeks of intensive work in a psychopathic hospital to give him merely symptomatic relief and enable him to work.

In the hospital are two patients, not on our service, who raise interesting questions on examination. All studies are negative, yet one, a 16 year old white girl, is admitted with "paralysis of right

arm and leg" which clears immediately only to return on the day of expected discharge; the other, an 18 year old white girl, has a "poker spine" of two and one-half years' duration, which has persisted despite many consultations, long hospitalizations, plaster body casts and braces. The latter has obvious hysterical fainting attacks, has obtained more relief from suggestions and subcutaneous novocain than from nerve block for lumbar pain and immobility of the spine. Should not such symptoms call for more than a search for organic pathology? Is it not harmful to continue to treat blindly conditions that respond to another approach, symptoms that might represent a "secondary gain" to the patient? I believe if more consideration is given to the kind of person manifesting symptoms and the nature of the setting in which they arise, many of our "undiagnosed" or "neurotic" patients will be treated with more understanding.

These cases, mentioned as they come to mind, are perhaps, unusual and striking in their presenting complaints. I have selected them to hold your attention while I plead that you look for the meaning of symptoms to the patient. Perhaps, then, the psychiatric clinic will see an occasional patient in the first year of his illness, rather than in the fifth or tenth.

---

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

- |           |  |           |   |
|-----------|--|-----------|---|
| April 1.  | Board of Directors, Orleans Parish Medical Society, 8 p. m.<br>Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.   | April 17. | Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.<br>Charity Hospital Surgical Staff, 8 p. m.  |
| April 2.  | Eye, Ear, Nose and Throat Staff, 8 p. m.   | April 18. | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.  |
| April 3.  | Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.<br>Hutchinson Memorial Clinic Staff, 8 p. m.<br>Mercy Hospital Staff, 8 p. m. | April 19. | I. C. R. R. Hospital Staff, 12 noon.<br>New Orleans Dispensary for Women and Children Staff, 8 p. m.  |
| April 4.  | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.   | April 22. | House of Delegates, Louisiana State Medical Society, Roosevelt Hotel, 9:30 a. m.  |
| April 8.  | Orleans Parish Medical Society, 8 p. m.  | April 23. | Louisiana State Medical Society, Roosevelt Hotel.   |
| April 9.  | Eye, Ear, Nose and Throat Society, 8 p. m.   | April 24. | Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.<br>French Hospital Staff, 8 p. m.<br>Louisiana State Medical Society, Roosevelt Hotel. |
| April 10. | Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.<br>Touro Infirmary Staff, 8 p. m.   | April 25. | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.  |
| April 11. | New Orleans Hospital Council, Baptist Hospital, 8 p. m.  | April 26. | L. S. U. Faculty Club, 8 p. m.  |
| April 15. | Hotel Dieu Staff, 8 p. m.  |           |   |
| April 16. | Baptist Hospital Staff, 8 p. m.<br>Charity Hospital Medical Staff, 8 p. m.   |           |   |

During the month of March, the Society held one regular scientific meeting and a special meet-

ing with the Louisiana Chapter of the National Gastroenterological Society.

At the regular meeting held March 11, the following program was presented:

1. Samuel A. Cartwright and States-Rights Medicine.

By Miss Mary Louise Marshall.

2. Interesting Case Reports.

Ruptured Infracalenoid Aneurysm: Dr. George Haik. (The case was presented by Dr. Anderson in the absence of Dr. Haik who was ill.)

Dr. Allan Eustis presented another interesting case of ruptured liver that resulted from an accident with extensive hemorrhage in the abdomen.

3. Symposium on Liver Diseases:

Etiology and Pathogenesis.

By Dr. William H. Harris.

Differential Diagnosis of Liver Diseases. Classification of Jaundice.

By Drs. C. J. Tripoli and D. E. Fader.

Basic Therapeutic Considerations in Diseases of the Liver.

By Dr. Frederick F. Boyce.

The following program was presented at the joint meeting of the Orleans Parish Medical Society with the Louisiana Chapter of the National Gastroenterological Society held March 25:

The Patient Who Refuses to Get Well in spite of Much Treatment.

By Dr. Walter C. Alvarez, Rochester, Minnesota, Professor of Medicine, University of Minnesota Graduate School, Minneapolis-Rochester; Editor, American Journal of Digestive Diseases.

The following doctors were elected to active membership: Drs. Vincent P. Blandino and William A. Sodeman. Dr. John D. Lane, Jr., was elected to associate; Dr. George F. Schroeder, to intern; and Dr. A. H. Gladden, Jr., to honorary membership.

#### NEWS ITEMS

Dr. John A. Lanford attended the meeting of the Board of Directors of the American Society for the Control of Cancer, in New York City, February 29 to March 7.

Dr. Alton Ochsner addressed the Stuart Clan on March 6. The subject of his talk was "Evolution of Twentieth Century Medicine." Dr. Ochsner also gave a talk on cancer, March 13, at the meeting of the Mothers' Club of the Sacred Heart of Jesus School.

Dr. Waldemar R. Metz has been notified of his election to the Founders' Group of the American Board of Plastic Surgery.

Dr. Nathan H. Polmer spoke on cancer control at a meeting of the McDonogh No. 14 Parent-Teacher Association, March 7.

Dr. George W. McCoy attended the meeting of the Council on Pharmacy and Chemistry of the American Medical Association in Chicago, March 7-9.

Dr. Mims Gage read a paper before the Jefferson County Medical Society at Port Arthur, Texas, on March 11. His subject was "The Intra-abdominal Complications of Appendicitis."

Dr. Conrad G. Collins was elected to membership in the Tulane Chapter of Sigma Xi, national organization for the promotion of scientific research.

On March 11, Dr. Joseph C. Menendez was elected President of the New Orleans Memorial Day Association.

Dr. John H. Musser addressed the Woman's Auxiliary of the Shreveport Medical Society on "State Medicine," March 13.

In connection with the educational campaign sponsored by the Louisiana Division of the Women's Field Army of the American Society for the Control of Cancer, the following members gave talks before various clubs: Dr. Leon J. Menville, Health Builders' Club, March 12; Dr. Alton Ochsner, Sacred Heart School Mothers' Club, March 13; Dr. E. Perry Thomas, Parent-Teacher Association of the Thomas Jefferson School, March 14; and Dr. Francis L. Jaubert, Parent-Teacher Association of the Rudolph T. Danneel School, March 15.

Dr. Roy E. de la Houssaye and Dr. William C. Rivenbark entered into a partnership agreement on March 1 for the practice of their specialty, pediatrics.

Drs. George C. Battalora, George A. Mayer, Louis A. Monte, H. Ashton Thomas and Edwin L. Zander attended the meeting of the Lafourche Valley Medical Society at Thibodaux, March 13. Dr. Mayer presented a paper, "The Breech Delivery."

The Library is in need of current numbers of the Journal of the A. M. A. We have so many calls for these journals that extra copies are needed. Any members who do not keep files of this Journal and would be willing to give them to the Library as fast as they are received, or soon thereafter, are requested to communicate with Miss Marshall.

Of interest to pediatricians, neurologists, plastic

surgeons, and otologists is the establishment in New Orleans of a school of speech correction at 7931 Green Street, (Walnut 5375-M). Mr. and Mrs. M. R. Reed are college graduates and qualified teachers, having had experience and training in this type of work.

#### TREASURER'S REPORT

Actual book balance 1/31/40.....	\$4,654.03
February credits .....	\$1,259.02
<hr/>	
Total credits .....	\$5,913.05
February expenditures .....	\$1,001.74
<hr/>	
Actual book balance 2/29/40.....	\$4,911.31

#### LIBRARIAN'S REPORT

During February, 43 volumes were added to the Library. Of these 23 were received by binding, 9 by gift, 1 by purchase and 10 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is appended to this report.

Members of the staff have collected material on the following subjects at the request of physicians:

- Ether convulsions.
- Arteriography.
- Shock therapy in dementia precox.
- Dublin treatment of eclampsia.
- Scotometry.
- Fluoroscopy.
- Stab wounds of the heart.
- Syphilis in otolaryngology.
- Wounds of the pancreas.

Our records show that 1,012 books and journals have been loaned to physicians during the month. An additional 1,217 have been loaned to students for overnight use, giving us a total circulation of 2,229. These figures do not include the great use of books and journals within the Reading Rooms.

The meetings of the Southern Branch of the American College of Surgeons and the New Or-

leans Graduate Medical Assembly brought many visitors to the Library. In this connection, exhibits have been prepared of medical prints, a display of reprints representative of the many contributions of Dr. Matas to medical knowledge, and a group of original publications illustrative of the development of vascular surgery in the last century. These displays have aroused much interest among our visitors as well as students and our own physicians.

#### NEW BOOKS

Sappington, C. O.: *Medicolegal Phases of Occupational Diseases*, 1939.

Ling, T. M.: *Recent Advances in Industrial Hygiene and Medicine*, 1937.

Cole, L. G., and Cole, W. G.: *Pneumoconiosis, the Story of Dusty Lungs*, 1940.

A. M. A. Council on Pharmacy and Chemistry: *The Vitamins*, 1939.

A. M. A. Council on Pharmacy and Chemistry: *Accepted Foods and their Nutritional Significance*, 1939.

Florida Citrus Commission: *Citrus Foods and Health*, 1939.

Harvey Society of New York: *Harvey Lectures, 1938-39*, 1939.

Colcord, J. C.: *Your Community*, 1939.

Ranson, S. W.: *Anatomy of the Nervous System*, 1939.

Scudder, John: *Shock; Blood Studies as a Guide to Therapy*, 1940.

Glasser, Otto: *William Conrad Roentgen*, 1934.

A. M. A. Council on Medical Education and Hospitals, 1934-39, 1940.

International Congress of Military Medicine and Pharmacy: *Proceedings*, 1939.

U. S. Army: *Report of the Surgeon-General*, 1939.

American Urological Association, Western Branch: *Transactions*, 1939.

Edwin L. Zander, M. D.,  
Secretary.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

### C A L E N D A R

Louisiana State Medical Society

April 22-24, 1940

New Orleans

#### PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in June	Jackson
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	



THE PRESIDENT

Dorman Bruister Barber, eldest son of Dr. Henry W. and Mattie Bruister Barber, was born at Butler, Alabama, March 8, 1900, fortunate, with his four brothers and one sister, in having a rural, natural environment in which to grow up. Like most American youths his early education was in the grammar school and high school of his community, which education was rudely interrupted by the World War where, as a volunteer, he served in Battery E, 49th Field Artillery. He returned home after the Armistice and celebrated his eighteenth birthday on a transport. He attended the University of Alabama being graduated with the degree of Bachelor of Science and received his medical degree from Tulane University in 1926. He was in active practice at Selma, Louisiana, for more than two years, then moved to Alexandria where he has been in general practice since. In 1930 he married Miss Olive Dean Cowley of Mansfield, Louisiana; they have two children, Dick aged 6 years, and Martha aged 3 years. He has been in organized medicine all the years he has practiced in the state, serving as secretary of the Rapides Parish Medical Society for two years and as its president in 1935. At the last meeting of the Louisiana State Medical Society in Alexandria in 1939 he was elected first vice-president and

later in the year elevated to the presidency by action of the Executive Committee.

Dr. Barber's early years have helped mold his character; the necessary adjustments as a member of a large family and as a unit in a great army with the vicissitudes of war have taught him the trait of mixing well and pleasantly with his fellowman. He is liked by his neighbors and loved by his friends and patients. That love of nature which began in his youth does not grow less with the years and frequently finds expression as, with his rod and reel, he momentarily deserts his practice and disappears in the wilderness.

#### THE PRESIDENT'S LETTER

Dear Members:

This will be the last of the letters that will appear from me as your president. May I take this means of thanking each and every member of the Society for the interest shown during my term of office, and for the many courtesies shown me in my visits over the state. I hope to see each and every one at the Annual Meeting. The program prepared will be one of the best, and will be well worth hearing. In addition to the scientific program, and probably the best part of a meeting, is the meeting of old friends who could not be seen otherwise.

I had the pleasure of attending the New Orleans Graduate Medical Assembly during the last week in February, and must say that it was one of the best programs that it has been my pleasure to attend in a long time. It was my privilege to make a few remarks at the opening session, a luncheon for the general assembly. I was put on a rostrum with the guest speakers, nearly all of whom were professors in their chosen field. I was asked what was my particular line of work, and replied that I was just a country doctor. The feeling was such as the proverbial bull in a china shop must have endured. Needless to say, I have not lost my awe of professors, even to this day.

It was my pleasure to have lunch with the new dean of Tulane, Dr. Lapham, who has recently succeeded Dr. Bass. I predict a successful administration for him. Also, it was my pleasure to spend several hours with the dean of L. S. U. Medical School, Dr. B. I. Burns, who is also a capable administrator. The present cordial feeling and fellowship that exists between the two schools is gratifying to all.

There have been but few meetings attended during the past month, except for the meeting of the Tri-Parish Society (Lincoln, Jackson and Union) which met at Ruston on March 19. Dr. Humphrey Hardy, of Alexandria, and Dr. M. H. Foster, also of Alexandria, accompanied me to that fair city. Dr. Hardy presented a talk on "The Conservative Treatment of Acute Peritonitis," while Dr. Foster spoke about "Your Prostate and Mine," both talks being excellent. The meeting

was held at the Ruston Hospital, and was well attended. Ruston is a nice little city, in the red hills of North Louisiana, and the home of Louisiana Tech.

Information has come to my desk from the magazine "Modern Medicine" giving the results of their poll of 20,215 physicians in the United States, and seems to demonstrate conclusively that federalized medicine is not gaining many adherents. The following is a quotation from their letter: "The balloting of 20,215 U. S. physicians demonstrates conclusively that federalized medicine is doomed in the U. S. because 85 per cent of the doctors would not cooperate with a federally controlled and administered legislative program tending toward the drastic curtailment of the private practice of medicine. Furthermore, 88 per cent see in such a program a menace to the public health through the deterioration in the quality of the medical service available to most people in the United States; 85 per cent are united in the support of the platform of the American Medical Association; and 88 per cent approve of its key points, namely, local responsibility for the delivery of medical care." I cannot vouch for the accuracy of these figures, but they appear to be very plausible. At any rate, we must constantly be on guard, first, to render such a high type of medical service that it would be foolish for any agency to attempt to alter our basic plan, and second, to convince our patients that our plan of individual service is the best for the patient.

Again, thanking each and every one for the many courtesies shown me, and thanking all for giving me such an enjoyable year in the service of our Society, and hoping that this is only a beginning,

I beg to be,

Obediently yours,

D. B. Barber, M. D.

#### THE ANNUAL MEETING

The time is rapidly approaching for the sixty-first annual meeting of the Louisiana State Medical Society which is to be held in New Orleans, April 22-24, 1940, at the Roosevelt Hotel.

Final details of an excellent scientific program have been arranged. The continued advance in therapeutics necessitates frequent attendance at medical meetings. Therefore the state meeting assumes a great deal of importance. Make plans early, so that you will be able to get away to the meeting.

The state meeting is being dedicated to Dr. Rudolph Matas on the anniversary of his sixtieth year in practice. The annual orators will be Dr. Matas and Governor-elect of the State of Louisiana, Sam H. Jones. Three physicians of national prominence will address the society as pointed out in the Editorial Section.

Send in your reservations early, in care of Dr. J. C. Menendez, Roosevelt Hotel. A large registration is anticipated, so plan on coming down early.

L. H. Strug, M. D.,  
Chairman of Publicity.

#### COMPONENT SOCIETY OFFICERS

1940

##### IBERVILLE PARISH

President: Dr. F. O. Tomeny, White Castle.

Vice-President: Dr. Eugene Holloway, Plaquemine.

Secretary-Treasurer: Dr. E. C. Melton, Plaquemine.

Delegate: Dr. Eugene Holloway, Plaquemine.

##### VERMILION PARISH

President: Dr. Adolph Landry, Delcambre.

Vice-President: Dr. G. L. Gardiner, Gueydan.

Secretary-Treasurer: Dr. M. A. Young, Abbeville.

Delegate: Dr. G. L. Gardiner, Gueydan.

Alternate: Dr. Adolph Landry, Delcambre.

##### SEVENTH DISTRICT

President: Dr. L. J. Bienvenu, Opelousas.

Vice-President: Dr. Charles Saint, Elizabeth.

Secretary: Dr. Ladislav Lazaro, Opelousas.

Treasurer: Dr. S. F. Hatchette, Lake Charles.

Delegate: Dr. W. A. K. Seale, Sulphur.

##### EIGHTH DISTRICT

President: Dr. R. G. Ducote, Bordelonville.

Vice-President: Dr. Swepson Fraser, Many.

Secretary-Treasurer: Dr. H. H. Hardy, Jr., Alexandria.

Delegate: Dr. J. T. Cappel, Alexandria.

#### BI-PARISH MEDICAL SOCIETY

A regular meeting was called to order by the president on March 6, 1940, at Jackson. After a bounteous repast in the East Louisiana State Hospital dining room and a vote of thanks extended to the hospital for the many entertainments given the Society, the members retired to the staff room for the completion of the program.

Minutes of the previous meeting were read and adopted. Committee consisting of Drs. E. M. Robards, C. S. Miller, and N. F. Stafford presented the following resolutions on the death of Dr. J. J. Ayo, former superintendent of the hospital, which were adopted:

*Whereas*, Since our last meeting, we have been reminded of the uncertainty of life and certainty of death in the passing from this earth on August 17, 1939, of one of our most beloved members, Dr. Jackson J. Ayo, and

*Whereas*, His worth as an upstanding exponent of organized medicine was known by every physician in the State, his services to the State and Parish Medical societies being numerous, and

*Whereas*, As a practitioner he had the love and respect of a large clientèle, and later served with

distinction as Superintendent of the East Louisiana State Hospital, and

Whereas, We, his confrères, honor his memory, and shall miss his guidance and congenial association, and

Whereas, We bow in most humble submission to the will of the "Great Physician" Whose divine plan it is that we shall all pass on to the great reward prepared for us,

Therefore, be it *Resolved*, That we the members of the Bi-Parish Medical Society express to his wife and family our deepest sympathy, and

Be it further *Resolved*, That a copy of these resolutions be spread upon our minutes, a copy be sent to his wife and family, and a copy be sent to the New Orleans Medical and Surgical Journal.

Dr. Rufus Jackson read an interesting and instructive paper on non-virulent infections related to the nose and sinuses. Subject was freely and favorably discussed by the members present. A vote of thanks was extended Dr. Jackson for his excellent and timely paper.

Next meeting will be held on the first Wednesday in June, 7:00 p. m., at the East Louisiana State Hospital.

E. M. Toler, M. D., Sec.

#### LAFOURCHE VALLEY MEDICAL SOCIETY

The Lafourche Valley Medical Society held its regular quarterly meeting at the Knights of Columbus home in Thibodaux, Louisiana on Wednesday, March 13, 1940 at 7:30 p. m.

The following papers were presented: "The Breech Delivery" by Dr. Geo. A. Mayer; "The Treatment of Sinusitis with Sulfanilamide" by Dr. D. T. Martin.

As usual, a good meal was served after the scientific program.

Percy H. LeBlanc, M. D., Sec.

#### THIRD DISTRICT MEDICAL SOCIETY

The quarterly meeting of the society was held at the Charity Hospital, at Lafayette, on Thursday, March 14.

The scientific presentations consisted of two excellent papers by guest physicians from New Orleans. Dr. Chaillé Jamison discussed "Acute Upper Respiratory Infections"; Dr. Michael DeBakey discussed "Peripheral Vascular Disease."

R. Sidney Hernandez, M. D., Sec.

#### REGIONAL FRACTURE COMMITTEE MEETING

The Fracture Committee of the American College of Surgeons in Louisiana is desirous of aiding in the national movement to improve methods of transportation of the injured to hospitals. This refers particularly to methods of handling fractures by ambulance from the site of the accident to the institutions.

Instructions by local physicians and by Red

Cross representatives in fixed traction methods will diminish suffering during transit. Enthusiastic cooperation of the profession, industrial leaders, and public service groups, which includes highway patrolmen, police and fire departments, boy scouts, and the public school administration is necessary for the success of this movement.

A meeting of the Regional Committee for the State of Louisiana will be held during the State Medical Society meeting. A demonstration booth will be found among the exhibits at the State Society meeting in New Orleans.

The cooperation of the profession is necessary for the success of this movement for public good.

(Signed) Isidore Cohn, Chairman,  
W. Rogers Brewster, Secretary,  
State Regional Committee.

#### AMERICAN ACADEMY OF PEDIATRICS

More than 250 pediatricians and guest physicians of Region II of the American Academy of Pediatrics, met at the Edgewater Gulf Hotel, at Edgewater Park, Mississippi, on March 15 and 16, 1940. The State of Louisiana was well represented by members of the Academy and their guests.

The program consisted of round-table and panel discussions as well as a series of papers. The Schools of Medicine of Tulane University and Louisiana State University contributed to the program through members of their faculties. Those attending from Tulane and participating in the program were: Dr. Maxwell E. Lapham, Dean and Professor of Obstetrics; Dr. Robert A. Strong, Professor of Pediatrics; Dr. Alton Ochsner, Professor of Surgery; Dr. William Harvey Perkins, Professor of Preventive Medicine; Dr. Mims Gage, Associate Professor of Surgery; Dr. Roy E. de la Houssaye and Dr. Julian Graubarth, Assistant Professors of Pediatrics; Dr. H. P. Marks, Dr. Richard P. Vieth, and Dr. J. D. Russ, Fellows in Pediatrics. Those attending and participating in the program from Louisiana State University were: Dr. Urban Maes, Professor of Surgery; Dr. Edwin A. Socola, Acting Director and Clinical Professor of Pediatrics; Dr. Ruth G. Aléman, Instructor in Pediatrics; Dr. Merrill Everhart, Instructor in Pediatrics, and Dr. Jack E. Strange, Assistant Professor of Pediatrics in the Graduate School.

Dr. Laurence R. DeBuys, who served as President of the American Academy of Pediatrics in 1936-1937, presided during the afternoon session on Friday, March 15.

Others from Louisiana who attended as members or guests were: Drs. Cecil Oliver Lorio, Sims Chapman, Rena Crawford, Maud Loeber, Emile Naef, Charles J. Bloom, Suzanne S. Schaefer, Charles T. Williams, Clarence H. Webb, A. S. Albritton, L. J. Flax, Bertha Wexler-Goldstein, Edward Levert, B. J. LaCour, David Miller, H. Mazo, C. T. Morris, J. R. Powers, Adrian Rodri-

guez-Macedo, Frances Rothert, L. Williamson, Virginia Webb.

Region II of the Academy comprises the southern states from West Virginia to Texas.

#### THE FEDERATION MEETING

One of the largest scientific meetings held in New Orleans in recent years was the Federation meeting which included the American Physiologic Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics and the American Society for Experimental Biology, from March 13 through March 16. Indicative of the size of this meeting is the fact that there were 307 papers read in the various sections under physiology, as well as 73 read by title. Before the Society of Biological Chemists appeared 117 essayists, while 52 presentations were read by title. Before the pharmacologic group came 76 speakers who had also 24 titles which were not presented. There were 47 speakers before the American Society for Experimental Biology. This makes a total of 547 papers read at this meeting or at least listed to be read. In addition there were ten demonstrations and nine different motion picture exhibits.

#### VANDERBILT UNIVERSITY MEDICAL SCHOOL GRADUATE COURSE IN INTERNAL MEDICINE

A course in internal medicine will be given at Vanderbilt University Medical School beginning July 1, 1940. The tuition fee is \$300. Three Fellowships will be awarded under certain conditions relative to the applicants' training and their recommendations. For the details of this course communications should be addressed to Dr. John B. Youmans, Director of Postgraduate Instruction, Vanderbilt University, Nashville, Tennessee.

#### THE SOUTHEASTERN SURGICAL CONGRESS

The Southeastern Surgical Congress met at Birmingham, Alabama, March 11-13. New Orleans physicians appearing on the program included Dr. James D. Rives who spoke on the splenic anemias and Dr. Michael DeBakey whose subject was perforated peptic ulcer. Exhibiting in the scientific exhibits were Drs. Alton Ochsner and Michael DeBakey, Dr. Dean Echols, Dr. Neal Owens and Dr. Howard Mahorner. The C. Jeff Miller Memorial Lecture was delivered by Dr. James M. Mason of Birmingham.

#### NATIONAL GASTROENTEROLOGICAL ASSOCIATION

The National Gastroenterological Association cordially invites you to attend its fifth annual convention to be held at the Hotel Roosevelt in New York City, June 4-6, 1940. A glance at the names of some of those men who are going to

participate in the scientific sessions of this convention will reveal some of the foremost specialists in the Western Hemisphere.

Further information and program will be forwarded to you if you will address your request to Dr. Henry Kendall, Chairman of the Program Committee, 16 East 96 Street, New York City.

#### NATIONAL PHYSICIANS' COMMITTEE

This organization has been formed, for the purpose of combating state medicine, by a group of well-known physicians under the leadership of Dr. Edward H. Cary, Chairman, Dr. Austin Hayden, Secretary, Dr. N. S. Davis, III, Treasurer, as well as Dr. John A. Hartwell, Dr. Roger I. Lee, Dr. A. McMahon, Dr. E. H. Skinner, and Dr. Charles B. Wright. The expenses of conducting the campaign which is under way have to be met by voluntary contribution and membership in the organization. Those interested in joining and furthering this work should communicate with Dr. D. I. Hirsch, Monroe; Dr. A. A. Herold, Shreveport; Dr. Gilbert C. Anderson, Dr. Clyde Brooks, Dr. J. H. Musser, or Dr. Alton Ochsner, New Orleans.

#### AMERICAN HEART ASSOCIATION

The sixteenth scientific sessions of the Heart Association will be held at the Hotel Roosevelt, New York City. The general cardiac program will be given on Friday, June 7, and the program of the Section for the Study of the Peripheral Circulation on Saturday, June 8.

#### NEW ITEMS

The American Medical Golfing Association's twenty-sixth annual tournament will be held at Winged Foot Golf Club, Mamaroneck, New York, Monday, June 10, 1940. Winged Foot has two famous championship courses and a beautiful club-house.

All members of the A.M.A. are eligible for Fellowship in the A.M.G.A. For registration application write the secretary, Dr. Burns, 2020 Olds Tower, Lansing, Michigan.

The Directory of Medical Specialists is the only official directory of its kind and lists approximately 14,400 diplomates certified by the twelve special American boards and one of the two affiliate boards. The directory is edited by Dr. Paul Titus and published by the Columbia University Press, Morningside Heights, New York City.

At a recent meeting in New Orleans, March 13, Dr. W. H. Sebrell, of the National Institute of Health, U. S. Public Health Service, was awarded the Mead Johnson and Company prize of \$1,000 for the study of nutrition.

The annual Stuart McGuire lectures, with which

the spring postgraduate clinics will be combined, are scheduled for April 16 and 17 at the Medical College of Virginia, Richmond.

A recent poll made by a medical journal relative to socialized medicine shows that throughout the country 85 per cent of the physicians would refuse to cooperate with federalized medicine. In the State of Louisiana 91 per cent of the doctors who were questioned likewise are not in favor of federalized medicine.

The American Public Health Association has recently printed a report on the educational qualifications of health officers. This report is distributed free. Copies may be secured from the American Public Health Association, 50 West 50 Street, New York City.

The sixty-ninth annual meeting of the American Public Health Association will be held in Detroit, Michigan, October 8-11, with the Book-Cadillac Hotel as headquarters.

#### MEDICAL TECHNOLOGISTS

At the request of the Surgeon General of the Army and in compliance with its policy of cooperation with both the Army and Navy, the American Red Cross, as an expansion of its peace-time service for the military forces, has undertaken the enrollment of various types of medical technologists who are willing to serve in the medical departments of the Army and Navy if and when their services are required at the time of a national emergency.

Technologists who qualify according to these general standards and who are willing to enroll for service as outlined above should communicate with The American National Red Cross, Washington, D. C.

A young physician is wanted in a suburban section of New Orleans, a community of some 10,000 where only two physicians are now available. Further information may be obtained at the office of the Journal.

#### INFECTIOUS DISEASES IN LOUISIANA

There was a continuation of the mild epidemic of influenza during the week ending February 17. There were 342 instances of this disease listed, followed by 283 cases of syphilis. The influenza epidemic was accompanied by a large number of cases of pneumonia as 97, more than double the five year average, patients were ill with this disease in that particular week. Other diseases included were 28 cases of pulmonary tuberculosis, 25 of cancer, 20 of gonorrhoea, 17 of chickenpox, and 11 of whooping cough. Of the infrequently reported diseases of epidemic or infectious nature,

a case of typhus fever was reported in Calcasieu and one of poliomyelitis in Orleans. The week which came to a close February 24 showed a definite reduction in the number of cases of influenza and pneumonia, 110 cases of the former and 67 of the latter being listed. Other prevalent diseases included 111 cases of syphilis, 20 of whooping cough, 28 of pulmonary tuberculosis, 25 of chickenpox, 22 of gonorrhoea, 20 of cancer, 18 of measles, and 12 of scarlet fever. This week a case of typhus fever was found in each of three parishes, Acadia, Orleans, and Vermilion. The number of cases of influenza increased in the last week of the month of February, the week which came to a close March 2, there being 194 cases listed by the state epidemiologist. This disease was followed in frequency by 88 cases of syphilis, 58 of pneumonia, 35 of pulmonary tuberculosis, 28 of whooping cough, 18 of chickenpox, 17 of cancer, and 11 of scarlet fever. A case of typhus fever was found in Lafayette Parish; three cases of tularemia were reported by Orleans Parish, all imported, and one by Caldwell Parish. In this week, incidentally, only one case of typhoid fever was reported, and two in the week which closed March 9. However, in this latter week, there was still a goodly number of instances of influenza and syphilis, with 135 and 134 cases respectively. Other commonly reported diseases included 52 cases of pneumonia, 38 of pulmonary tuberculosis, 26 of scarlet fever, 22 of cancer, 13 of chickenpox, and 10 of gonorrhoea. A case of anthrax was found in Lafayette Parish and one of tularemia in Pointe Coupee.

#### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reported that for the week ending February 17 there were 242 deaths in the City of New Orleans, divided 165 white and 77 negro. Twenty-one of these deaths were in infants under one year of age. There was not a great deal of change in the mortality incidence in the city for the week of February 24. Of the 230 deaths, there were 135 white and 95 negro, with 19 infantile demises. For the week ending March 2, there was a sharp decrease over the previous few weeks in the number of deaths among citizens of New Orleans and surrounding parishes who had been sent in to Charity Hospital. There were 166 deaths, 112 of which were in the white and 54 of which were in the negro population. The infant mortality was 12, one-third white and two-thirds negro babies. Further decrease in the total number of deaths in the city was found to have taken place in the week of March 9. There were 154 persons dying in New Orleans, divided respectively 99 white and 55 negro. Thirteen of these deaths took place in small children, which, on being broken down, was found to be due to five white and eight colored deaths.



**WOMAN'S AUXILIARY****Louisiana State Medical Society**

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

**AMONG THE AUXILIARIES****CADDO PARISH**

The Woman's Auxiliary to the Caddo Parish Medical Society held one of the most interesting meetings of the year in Shreveport on March 13 in the auditorium of the new Louisiana State Exhibit Building. This was an open meeting to which were invited several women from each club in the district.

Dr. J. H. Musser, of New Orleans, spoke on "The Problems of State Medicine and How the Doctor Looks at Them." Dr. Musser's talk was both informative and interesting. A large number of women and doctors attended.

Mrs. N. J. Bender,  
Press and Publicity Chairman.

**CALCASIEU PARISH**

The Calcasieu Parish Auxiliary entertained the auxiliary members of Beauregard and Jefferson Davis parishes in Lake Charles. Mrs. S. M. Blackshear, state president, was the guest of honor at the delightful luncheon which preceded the meeting.

During the month of March, the Auxiliary followed the example of other auxiliaries throughout the state, by holding an open meeting at which the problems of state medicine were discussed.

**ORLEANS PARISH**

The monthly meeting and reception of the Woman's Auxiliary to the Orleans Parish Medical Society was held on March 13, at the Orleans Club, in New Orleans. Mrs. J. W. Warren, general chairman of the forthcoming State Medical Meeting to be held in New Orleans, April 22-24, outlined a program for the entertainment of the ladies which should prove to be most interesting and enjoyable. The meeting was followed by music,

and a reading of Robert Nathan's "Portrait of Jennie," by Mrs. Alexander Donovan. Tea and coffee were served.

Mrs. Donovan C. Browne,  
Press and Publicity Chairman.

**ST. TAMMANY PARISH**

The St. Tammany Parish Auxiliary, of which Mrs. Walter D. Simmons is president, will entertain the members of Washington and Tangipahoa parishes in Covington on March 27. The meeting and reception will be at the home of Mrs. Roy Carl Young, president-elect of the State Auxiliary.

**TERREBONNE PARISH**

The Terrebonne Parish Auxiliary, which holds its meetings in Houma, entertained in March with a luncheon at the home of Mrs. Thaddeus St. Martin. Mrs. S. M. Blackshear, state president, attended the meeting.

The Auxiliary has done a fine piece of philanthropic work this year by providing eye-glasses for needy school children.

Mrs. S. F. Landry, president, reports that the doctors of the local medical society will be entertained at a supper party on Doctors' Day.

**SECOND DISTRICT**

A meeting and election of officers for the Second District Auxiliary was held in March at the home of Mrs. J. Earl Clayton, Norco, La.

On Doctors' Day, March 30, the Auxiliary will remember all doctors in the district with greeting cards; they will also entertain the doctors at a buffet supper. Among the out of town guests attending this meeting were Mrs. S. M. Blackshear, state president, and Mrs. W. R. Buffington, both of New Orleans.

The following officers were elected for the coming year: president, Mrs. J. Earl Clayton, Norco; vice-president, Mrs. W. F. Guillotte, LaPlace; secretary, Mrs. J. J. Massony, Westwego; treasurer, Mrs. P. P. LaBruyère, Marrero.

**NEW AUXILIARIES**

Mrs. Erwin L. Gill, Organization Chairman for the State Auxiliary, after her recent tour of the state, announces the organization of two new auxiliaries: Beauregard Parish, with Mrs. J. D. Frazar, of DeRidder, as president; and LaFourche Parish, with Mrs. Leo Kerne, of Thibodaux, as president. The State Auxiliary gladly welcomes these new members.

Mrs. A. L. Levin, State Chairman of the Committee on Research and Romance of the Woman's Auxiliary to the S.M.A., asks your cooperation by sending to her any papers or copies of historic value. These papers on medical history will be used for future program material. Address: Mrs. A. L. Levin, 3725 Napoleon Ave., New Orleans.

## A. M. A. CONVENTION

It won't be long now before the Woman's Auxiliary to the American Medical Association will be convening at the Hotel Pennsylvania, New York City, for their Eighteenth Annual Convention to be held June 10-14, 1940. Is your reservation in? We are sure you will want to stay at the head-

quarters Hotel Pennsylvania. In order to get a reservation, mail your request today to Dr. Peter Irving, Housing Bureau, Room 1036, 233 Broadway, New York City.

Respectfully submitted,  
Mrs. Edgar Burns,  
Press and Publicity Chairman.

---

## BOOK REVIEWS

*Manual for Diabetic Patients:* By W. D. Sansum, M. D., Alfred E. Koehler, M. D., Ph. D., and Ruth Bowden, B. S. New York, The MacMillan Co., 1939. Pp. 227. Price \$3.25.

This manual, emanating from the Santa Barbara Cottage Hospital, has been prepared by a group who are eminently fitted to present to the diabetic patient, and to the doctor, the important facts concerning diabetes. While the book is intended primarily for the patient, it contains a wealth of material which would be of the utmost value to any physician. As a matter of fact some of the material seems to be available only to the medical man because it would require on the part of a reading member of the laity a rather broad knowledge of the physiology and chemistry of the body to understand certain parts of the text.

The manual first presents the history and nature of diabetes and then in succeeding chapters discusses the diagnosis, purposes and aims of treatment, acidosis, insulin reactions, complications of the disease, and laboratory tests for the patient. The second portion of the book is devoted entirely to the preparation of the diet with pertinent information concerning caloric value of foods, how to prepare a diet, and recipes. The appendix contains food and weight tables, list of supplies and an excellent glossary. No criticism can be made of the book or its contents. There are some who have been interested in the specialty of diabetes who have criticized the chief author because he gives a high carbohydrate diet to his diabetic patients. He refutes this statement by saying what he gives is merely an *adequate* carbohydrate diet. Furthermore, he gives a general well balanced diet so that people receive an ample vitamin ration, together with a proper mineral intake.

Despite the criticism that was made in the past to Sansum's diets, the fact remains that more and more the tendency is to put the patient on a normal diet and control the diabetes with insulin. Furthermore, the tendency nowadays is to disregard a small amount of urinary sugar so that the exact and detailed measurement of the diet can be done away with. It is a question if a book is necessary to instruct the new diabetic patient or if it is advisable to give him such explicit directions that the food must be weighed to the last

gram or that if a substitute is used its exact carbohydrate value must be known. With the use of the new insulin this tendency to reduce to a minimum the minutiae of treatment is being carried out still further. One or two daily injections of protamine zinc insulin, with the patient eating a normal amount of food, that is, enough to maintain body weight and good health, are the order of the day. Acidosis arises only under unusual circumstances and the life of a patient is made simple and easier. He does just as well on this regimen as does the patient whose last crumb is estimated in his intake of food.

J. H. MUSSER, M. D.

*Lectures on the Epidemiology and Control of Syphilis, Tuberculosis and Whooping Cough, and Other Aspects of Infectious Disease:* By Thorvald Madsen, M. D. Baltimore, Williams & Wilkins Co., 1937. Pp. 216. Price \$3.00.

This book comprises a series of five lectures which were given in the Abraham Flexner Lecture-ship at Vanderbilt University in 1937. The author, Dr. Thorvald Madsen, of Copenhagen, has been for many years an authority in the field of epidemiology and immunology. Three of these lectures have to do with the preventive and public health aspects of syphilis, tuberculosis, and whooping cough. Of particular interest is the chapter on venereal disease, in which Dr. Madsen unfolds step by step the various underlying factors which have been instrumental in so remarkably decreasing the frequency of venereal disease, especially syphilis, observed in Denmark in the past few decades.

A fourth chapter is a discussion of the ways by which pathogenic microbes enter and invade the organism. The final chapter comprehends a subject of age-old interest, which has received a new impetus in the past decade: the influence of seasons on infection.

The material in each of these lectures is based chiefly on the experiences of the State Serum Institute of Denmark (Dr. Madsen has long been Director), and of the medical profession of Denmark, but the epidemiologic and public health significance is world-wide.

ROBERT MUNGER, M. D.

*Cardiovascular Diseases, Their Diagnosis and Treatment:* By David Scherf, M. D., and Linn J. Boyd, M. D., F.A.C.P. St. Louis, The C. V. Mosby Co., 1939. Pp. 458. Price \$6.25.

This book has four hundred and thirty-one pages and is divided into twenty-seven chapters. Some of the chapters are very short but as a rule the subject is covered sufficiently for a book of this size.

The authors state that they make no claim to completeness and that the book is intended to supply considerable practical information. In this they have succeeded. The reader will find many useful points in the discussion of physical findings in heart disease. There is an almost complete absence of discussion of electrocardiography. The book is written mostly for those who must rely unaided upon their senses.

The senior author published a book in German that is said to have been very popular. This book is supposed to be similar, with rearrangements of various sections and a number of additions. One gets a slightly different point of view from the American literature on cardiovascular disease and there are a few statements in the book that may not meet with the approval of all. As a whole, the book is a valuable contribution to our literature on diseases of the heart.

The reviewer has no hesitation in recommending this book to those interested in this subject.

J. M. BAMBER, M. D.

*Medicine for Nurses:* By C. Bruce Perry, M. D., F. R. C. P. Baltimore, William Wood and Company, 1938. Pp. 210. Price \$2.00.

The author's prefacing statement that "the book is primarily intended for nurses studying for the final examination for the Certificate of General Nursing of the General Nursing Council" quite clearly epitomizes this attempt to give British nurses some knowledge of medical diseases. Reasonably complete and accurate despite its brevity, it makes an excellent addition to the library of any American nurse. Educators of nurses will find it useful as a basic text.

SYDNEY JACOBS, M. D.

*Fractures:* By Paul B. Magnuson, M. D., F. A. C. S. Philadelphia, J. B. Lippincott Co., 1939. Pp. 511; illus. Price \$5.00.

In the third edition of the concise fracture text, Dr. Magnuson has adhered to his original principle as expressed in his "Preface," to present the subject of fractures in a manner that would call attention to fundamental principles, not to lay too much stress on any one method but to give, if possible, a broad view of fractures as a whole, correlating the study of anatomy and physiology to the principles of the treatment of individual fractured bones.

The author's writings reflect the attitude of the

constructive surgical groups interested in the problems of the care of fractures, i.e., The Fracture Committee of the American College of Surgeons; American Academy of Orthopedic Surgery; and of the American Medical Association, and the section on pathology of the fracture lesion has been revised in accordance with the views of these groups.

The section on treatment of impacted fracture of surgical neck of humerus, fracture-dislocation of the head of the humerus, fractures of both bones of fore-arm, have been revised and elaborated.

The chapter on fractures of the neck of the femur has been completely rewritten, and newly illustrated; and revisions made in the chapter on physical therapy.

The extensive bibliography has been brought up to date and the important recent fracture articles listed.

Dr. Magnuson has persisted in his efforts to present a book to meet the needs of the man who first sees the fracture; extensive operative procedures have been purposely omitted, and the methods described have been thoroughly tried out and have "worked" in actual practice.

On the whole, the book fulfills admirably the purpose for which it is intended, and can be recommended to any surgeon interested in improving fracture treatment.

H. D. MORRIS, M. D.

*Office Gynecology:* By J. P. Greenhill, B. S., M. D., F. A. C. S. Chicago, The Year Book Pub. Co., 1939. Pp. 406. Price \$3.00.

This book is a welcome addition to the "working" library of the general practitioner, and to a lesser extent to that of the gynecologist. In a clear, concise and easily readable manner, all the procedures, diagnostic and therapeutic, in current use in "office" gynecology are presented. The addition of well selected illustrations increases the value of the book.

B. B. WEINSTEIN, M. D.

*Nutrition and Diet in Health and Disease:* By James S. McLester, M. D. Philadelphia, W. B. Saunders Co., 1939. Pp. 838. Price \$8.00.

The third edition of this excellent work on nutrition is almost entirely a new book. As a matter of fact it has been entirely rewritten. This step was deemed advisable by the author because of a remarkable increase in the knowledge of nutritional diseases that has been made in the last few years. The form and the format of the book are much the same as the previous editions. The sectional divisions likewise adhere pretty closely to the same arrangement as was used before.

Starting off with Part I, McLester describes the physiology of digestion and metabolism. To metabolism is devoted some 25 pages. The next im-

portant division has to do with the vitamins. The thorough revision of this particular section is timely and appropriate because of the confusion that has arisen as result of so many publications, of so much experimental and clinical work on the vitamins. It might have been of some help to the general practitioner if vitamin therapy had been considered more in detail, by that I mean to imply that specific directions be given for the administration of vitamins and that the various Council recognized vitamin preparations now on the market be presented and discussed. There then follows a chapter on certain food elements, the minerals, which are often neglected in considering the diet. The next large section has to do with food products. Here is a very complete exposition on all of the important foods; to milk alone, for example, is devoted some 16 pages. Section C discusses the diet in health. Chapter 13 of this section would be particularly important to the obstetrician. It has to do with fertility, pregnancy, lactation and so on.

In Part II there are presented various diseases for which special types of food are indicated. Naturally the first and longest chapter is on the deficiency diseases and their syndromes. The next chapter deals with diabetes mellitus and so on down the list; allergy, the kidney, disorders of the digestive system, the heart, the blood, and other portions of the anatomy are dealt with in detail.

The third part of the book, the appendix, gives pertinent information concerning such practical points as methods of feeding, including by enema; methods of cooking, and how to cook different articles of food, weight tables and then many pages on the composition of foods.

The book is extremely complete. Consulting the index, reading over the various sections, it is impossible to find an omission relating to nutrition and diet. The advice given is sensible and sane, it is practical and most informative.

It should be added that the chapter on the feeding of infants was written by Dr. P. C. Jeans, Professor of Pediatrics at the State University of Iowa, and that on the feeding of surgical patients by Dr. Dean Lewis, Professor of Surgery at Johns Hopkins University.

J. H. MUSSER, M. D.

*Medicolegal Phases of Occupational Diseases:* By C. O. Sappington, A. B., M. D., Dr. P. H. Chicago, Industrial Health Book Co., 1939. Pp. 405. Price \$3.00.

This excellent and comprehensive volume is of interest not only to the medical profession, but to the legal profession and to employers in various industries.

Part one covers industrial diseases; part two, insurance problems; part three, medical aspects and part four, legal phases. This is followed by an appendix and list of tables giving dust ex-

posure standards, allowable concentration, frequency of dermatitis and causative agents, finally ending with Higher Court Decisions brought up to 1937.

Although only twenty-one states have compensation laws which especially cover occupational diseases, it is likely that such legislation will spread throughout the entire U. S. It is of interest, therefore, to all men who are engaged in industrial medicine or industrial surgery to become conversant with the facts contained in this volume. The arrangement of the matter is excellent, the treatment of each subject is concise and complete.

The reviewer cannot recommend this book too highly.

E. A. FICKLEN, M. D.

*Shock; Blood Studies as a Guide to Therapy:* By John Scudder, M. D., Med. Sc. D., F. A. C. S. Philadelphia, J. B. Lippincott Co., 1940. Pp. 315. Price \$5.50.

This book presents a review and critique of the blood studies which are so important in the modern management of shock associated with burns, automobile and industrial accidents, operative procedures, and dehydration states.

The author first reviews the history of the condition known as shock, and gives a resumé of the important experimental work and observations upon which the present treatment is based. Theories which attribute the occurrence of shock to toxemia, loss of circulatory fluid, neurogenic influences, and adrenal exhaustion, are discussed and analyzed. Ionic changes, as well as the alterations in non-protein nitrogen, sugar, fat and cholesterol, which occur in the blood in states of shock, are considered. The changes in blood and tissue-fluid potassium levels are related to the development and maintenance of shock.

In discussing the transfusion of blood in the treatment of shock, the problems involved in the preservation of blood, and the methods of minimizing the undesirable results following the administration of preserved blood, are presented. The administration of oxygen to combat anoxemia, the control of pain, and the prevention of absorption from traumatic foci are discussed.

The demonstration of hemoconcentration or inspissation of the blood by means of specific gravity determinations, red blood cell counts, and cell volume calculations is shown to be important in the study of the patient in shock. Four tests for dehydration, i. e., cell volume, specific gravity of the whole blood, specific gravity of the plasma, and plasma protein level, all of which can be done in fifteen minutes' time, furnish accurate information which enables the direction of adequate therapy in surgical emergencies. The ability of these physical measures to reveal the incipient stages of shock, before irreversible changes have occurred,

and before significant lowering of blood pressure has occurred, is repeatedly emphasized. Furthermore, the value of plasma proteins and plasma potassium determinations in revealing osmotic pressure within the capillaries, the ingress of cell water, or the failure of the kidneys to excrete potassium, is indicated.

The treatment employed in the management of shock is considered in relationship to various circumstances under which it occurs, i. e., postoperative shock, shock due to trauma alone, shock due to trauma complicated with hemorrhage, shock due to hemorrhage, shock due to burns, shock due to perforated duodenal ulcer, and primary shock.

The author, in presenting the results in twenty-seven cases of shock in which cortical extract, salt, and transfusions were employed, draws attention to the association of adrenal cortical damage or insufficiency with the shock syndrome. The action of cortical extract in restoring blood volume and relieving hemoconcentration as well as its effect in raising blood pressure, are among the important desirable actions of this substance. Salt solution administration is advocated because of its influence in combating the inspissated condition of the blood; increasing the velocity of the circulation; decreasing the generalized vasoconstriction; and lowering undesirable hyperpotassemia. The dangers of giving large amounts of hypertonic saline solutions in anhydremia are advanced, and the author especially deprecates the use of hypertonic acacia solutions.

In a separate section of this monograph there is given the historical development and bibliography pertaining to shock and its treatment from 1492 through 1938.

An appended laboratory manual describes in detail the apparatus, equipment and procedures necessary for the performance of the tests which are advocated in the text.

It is unfortunate that the wealth of material in this book is not in some parts arranged in a better coordinated fashion. This deficiency is, however, in large measure compensated by a more than adequate index, which renders the contents readily available for reference purposes.

AMBROSE STORCK, M. D.

*Accepted Foods, and Their Nutritional Significance:* A publication of the Council on Foods of the American Medical Association. Chicago, American Medical Association, 1939. Pp. 512. Price \$2.00.

"Accepted Foods and Their Nutritional Significance" contains descriptions and detailed information regarding the chemical composition of more than 3,800 accepted products, together with a discussion of the nutritional significance of each class of foods. The book provides also the Council's opinion on many topics in nutrition, dietetics and the proper advertising of foods.

This book will be a welcome reference book for all persons interested in securing authoritative information about foods, especially the processed and fabricated foods which are widely advertised. The accepted products are classified in various categories: fats and oils; fruit juices including tomato juice; canned and dried fruit products; grain products; preparations used in the feeding of infants; meats, fish and sea foods; milk and milk products other than butter; foods for special dietetic purposes; sugars and syrups; vegetables and mushrooms; and unclassified and miscellaneous foods, including gelatin, iodized salt, coffee, tea, chocolate, cocoa, chocolate flavored beverage bases, flavoring extracts, dessert products, baking powder, cream of tartar, baking soda, cottonseed flour. There is a suitable subject index as well as an index of all the manufacturers and distributors of food products that stand accepted by the Council on Foods.

"Accepted Foods" is indispensable for the library of every physician concerned with foods and nutrition.

COUNCIL ON FOODS, A. M. A.

*The Vitamins:* A Symposium Arranged under the Auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association. Chicago, American Medical Association, 1939. Pp. 637. Price \$1.50.

So much information has become available about the vitamins, that it is difficult even for experts to keep up with the literature. The present volume is a welcome compendium of authoritative information about these accessory food factors. There are discussions of the chemistry, physiology, pathology, pharmacology and therapeutics, methods of assay, food sources and human requirements of each of the important vitamins. The volume is composed of thirty-one chapters written by experts, and is published under the auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association.

This book should prove to be an indispensable volume for the library of every physician.

COUNCIL ON FOODS, A. M. A.

*The Harvey Lectures 1938-39:* By The Harvey Society of New York. Baltimore, The Williams & Wilkins Company, 1939. Pp. 279. Price \$4.00.

This little book contains the lectures delivered by eight distinguished scientists before the Harvey Society of New York in 1938 and 1939. The Society's interests as indicated by the constitution in the beginning of the volume are mainly medical and biological sciences. The lectures concern basic sciences and the marginal advances of the subjects with which they deal. Some of the titles are: Intermediary Metabolism of Steroid Hormones; The Significance of the Albumen Frac-

tion of the Serum; Proteins as Chemical Substances and as Biological Components; Biological Oxidation and Vitamins.

Even though highly scientific, the discussions are simplified enough to be readily understandable by those of us whose interests are more towards the clinical side of medicine. The book will have its chief appeal to workers in the basic sciences.

HOWARD MAHORNER, M. D.

*The Anatomy of the Nervous System:* By S. W. Ranson, M. D., Ph. D. Philadelphia, W. B. Saunders Company, 1939. Pp. 507; figs. 382. Price \$6.50.

In this sixth edition of Ranson's "The Anatomy of the Nervous System," the subject has been brought to date in so far as concerns particulars which claim a place in a text, and revisions have been made toward other improvements of text matter and illustrations. Favorably received since its first publication in 1920, the book is too well known to require detailed comment. It need only be said that all the merits of preceding editions are retained, notably close correlation of anatomy and function, lucid style and abundance of excellent illustrations. At the same time a fault has been carried from edition to edition, marring a book which is otherwise an exceptionally fine work of its kind. The fault arises from the author's attempt to adapt the book to unlike modes of teaching neuro-anatomy. He states in the preface: "In many laboratories the head of the shark and the brain of the sheep have been used to supplement human material. The book has been so arranged as to facilitate such comparative studies without making it any the less well adapted to courses where only human material is used." The actual experience is that the introduction of material on the sheep brain is a source of confusion in a course which is devoted to the human nervous system. The medical student gains his acquaintance with neuro-anatomy under the handicap of limited time and he finds that the

complexities of the subject are at best difficult enough to master. He should not be compelled to waste time and energy in disentangling sheep brain and human brain in descriptions and illustrations.

HAROLD CUMMINS, PH. D.

#### PUBLICATIONS RECEIVED

The Blakiston Company, Philadelphia: Manual of Dermatology by Carroll S. Wright, B. S., M. D.

Charlotte Medical Press, Charlotte, N. C.: The Essentials of Applied Medical Laboratory Technic by J. M. Feder, M. D.

Harvard University Press, Cambridge, Mass.; The Electrocardiogram in Congenital Cardiac Disease by Maurice A. Schnitker, B. Sc., M. D.

Lea & Febiger, Philadelphia: Obstetrics and Gynecology (2 v.) edited by Fred L. Adair, M. A., M. D., F. A. C. S.

J. B. Lippincott Company, Philadelphia: The New International Clinics, Vol. I, New Series Three, 1940, edited by George M. Piersol, M. D. The Newer Nutrition in Pediatric Practice by I. Newton Kugelmass, B. S., M. A., M. D., Ph.D., Sc. D.

The Macmillan Company, New York City: As the Twig Is Bent by Leslie B. Hohman, M. D.

The C. V. Mosby Company, St. Louis: The Management of Obstetric Difficulties by Paul Titus, M. D.

Reynal & Hitchcock, Inc., New York City: Ten Years in the Congo by W. E. Davis.

W. B. Saunders Company, Philadelphia: Clinical Roentgenology of the Alimentary Tract by Jacob Buckstein, M. D.

Williams & Wilkins Company, Baltimore: Illustrations of Surgical Treatment by Eric L. Farquharson, M. D., F. R. C. S. E. Injuries of the Skull, Brain and Spinal Cord edited by Samuel Brock, M. D. Savill's System of Clinical Medicine edited by Agnes Savill, M. D., and E. C. Warner, M. D., F. R. C. P. Illustrations of Bandaging and First Aid compiled by Lois Oakes, S. R. N., D. N. Sexual Disorders in the Male by Kenneth Walker, F. R. C. S., and Eric B. Strauss, D. M., F. R. C. P.

# New Orleans Medical

and

# Surgical Journal

Vol. 92

MAY, 1940

No. 11

## THE PRESIDENT'S ADDRESS\*

### A PLEA FOR MEDICAL SUPERVISION AND CONTROL OF THE HEALTH AGENCIES OF LOUISIANA

D. B. BARBER, M. D.  
ALEXANDRIA

I have selected for the subject of my address "A Plea For Medical Supervision and Control of the Health Agencies of Louisiana." In view of the fact that we have recently undergone one of the most strenuous political campaigns in the history of the state, in which the existing order, or state officers, has been repudiated and overthrown, and a new regimen is soon to be established, cannot we, the medical profession of the state, with the aid of the Governor and Legislature, bring about a different plan of administering the health institutions of Louisiana? The State Board of Health, the five Charity Hospitals, the two Hospitals for the Insane, the State Colony and Training School (for feeble-minded and epileptics), and the Tuberculosis Sanatorium, constitute one of the largest expenditures of the state's revenues, and probably affects as many citizens, if not more, than any other one department of the state.

That the State Board of Health, the State Hospital and Welfare Board, the Charity and Insane hospitals, have been political foot-balls during the past decade and more, which has reacted to the detriment of the

state, the poor and the needy for whom these institutions were created, the general public, and the medical profession, is common knowledge to all, and cannot be denied. No public institution dealing with the public health can function efficiently, economically and scientifically when subject to the vicissitudes of politics. Can any institution be properly administered when the principal recommendations of its executive officer be the ability to secure and deliver the most votes for the administration that happens to be in office at the time, and should he lose this influence at the polls, or fail to collect the "deducts," be summarily dismissed in favor of another who could and would deliver such services? It has been repeatedly charged that to secure a position, even a minor one, in one of our institutions, the person, his family and friends must have "voted right," and have the endorsement of some local "boss" certifying that he is "all right politically." Such has been the method of control and administering of our health institutions in the past.

The public health profession is a specialty of medicine, requiring for its supervision, guidance and administration persons trained in the medical sciences. While it is true that in the practical administration of modern systems of health other scientific fields are drawn upon and freely used, yet it is true that these agencies and their technics contribute to the ultimate end sought; the control and eradication of disease must be built upon the scientific medical discoveries and researches. Further, the success of any plan of administer-

\*Delivered before the sixty-first annual meeting of the Louisiana State Medical Society, April 23, 1940.

ing health protection hinges largely, if not entirely, upon the interest, loyalty and leadership furnished through the medical profession. This failing, the system itself fails. It has been told me time without number, in my visits about the state as your president, that the present method of control and administration of our institutions did not have the respect of the medical profession, and that a change was most desirable.

The time now seems particularly opportune, with a new state administration, and when governments,—federal, state and local,—are striving to strengthen and expand their health agencies, for us to put our institutions on a firmer base, to remove baneful influences, and to adhere strictly to the principle that any service so technical as health, and the care for the sick and afflicted, can only be built through the employment of properly trained personnel. In such a struggle, the voice and influence of the medical profession, as expressed through this organization, representing over 82 per cent of the physicians of the state, should have great weight and influence, and should be registered now and at every appropriate occasion. It is an indisputable fact that without the support of the practicing physicians, the Boards of Health and the Charity Hospitals would go on the rocks. Appreciating these facts, we should endeavor to acquaint our executive officers and legislators of the conditions as they exist, and endeavor to influence them, through our Society and profession, to make an effort to raise the level of human happiness and efficiency through the application of scientific discoveries in the field of medicine.

If one is going to build a house he engages a carpenter; if his car does not run he sees an automobile mechanic; if he has dealings with the court he consults his lawyer. Should not the medical profession, as represented by our Society, be consulted concerning the plans, policies and administration of the health problems of the state? We have as one of our health institutions the State Hospital and Welfare Board, composed of laymen, and whose administrator

or director is a layman, and this board directs the policies of the Charity Hospitals of the state. No matter how sincere his efforts may be, he does not possess the proper training, previous experience, insight, and point of view so necessary for the proper understanding of this great task. I believe that I express the opinions of the vast majority of the physicians of the state that this Board has not rendered the best type of service, and that it was far from being satisfactory, so much so that the dissatisfaction has gone far beyond the medical profession. A carpenters' union, Shreveport Local No. 146, presented a resolution to the State Federation of Labor at its recent annual convention, which resolution was passed without a dissenting vote, that the Governor-elect and Legislature be petitioned to remove the Charity Hospitals from factional political control. It is a matter of record that a past-president, then president of our Society, Dr. Horton, vainly endeavored to secure medical representation on this Hospital Board, but was denied even an audience with the then Governor (Leche).

Society needs more and more the beneficent and uplifting influences of an expanded, scientific health service, motivated by altruism and a sincere desire to improve mankind. René Descartes, the great French philosopher, said three centuries ago in words that are very applicable today: "If ever the human race is lifted to its highest practicable level intellectually, morally and physically, the science of medicine will perform that service." Webster defines the verb "cooperate" as "acting jointly with others." Theodore Roosevelt, on one occasion when pointing out the need for teamwork and cooperative effort, explained: "The grandest word in the English language is 'together'." That there is a great need for the reorganization of the health facilities of our state is an obvious fact, recognized by people in all walks of life. It is likewise an obvious fact that this task is a stupendous one. The Louisiana State Medical Society wishes to express itself as being ready and willing, yea, even anxious, to cooperate with the new administration,



in both the executive and legislative branches, so that, with the united efforts of all, some plan may be evolved whereby the health agencies of Louisiana may be removed from the uncertainties and upheavals of politics; whereby our institutions and their personnel may be divorced as far as possible from such control; and whereby the medical profession, which has originated all health measures, be permitted to have a much greater control and supervision of this work than has been granted in the past. To this end we offer our services, both as a Society and as individuals, with the view of providing adequate health facilities for our people, in a more equalized, more efficient and more economical manner, and under a system that will reflect credit to the people, the government and the medical profession of our great state.

—o—

## INTERSTATE ENDORSEMENT

### ADDRESS OF THE PRESIDENT\*

ROY B. HARRISON, M. D.

NEW ORLEANS

It is indeed a privilege and an opportunity to address the Federation of State Medical Boards of the United States—one of the most important and active bodies of medical men in this country.

I have selected interstate endorsement or reciprocity as my subject, because I consider it of great importance in regulating the practice of medicine, and also because it is at this time a paramount issue which confronts this, our Federation. The problem of universal reciprocity is one that has been discussed pro and con for several years, yet there has never been any concerted action toward making it an acceptable and practical plan of operation. At a meeting of the Advisory Council of Medical Education and Licensure, the Committee on Internship and Interstate Endorsement with Dr. J. W. Bowers, secretary of

the Indiana board, as chairman, endorsed universal reciprocity. We of the medical profession are in agreement that universal reciprocity is a vital necessity and that its adoption would be an asset to our profession. Most directly interested in this question are the Council on Medical Education and Hospitals of the American Medical Colleges and the Federation of State Medical Boards of the United States.

The Council on Medical Education and Hospitals of the American Medical Association has accomplished a wonderful work. Over a period of years they have worked for and made possible medical standards that have improved and advanced with the times. In my experience of over twenty years as a member of a state medical examining board, I have observed and come in direct contact with the excellent work of this Council. It has been their persistent and thorough inspections and gradings of medical colleges that have, to a large degree, separated the good from the bad until, at this time, most of the medical schools are on the good side.

To the state medical boards the Council on Medical Education and Hospitals has given the utmost cooperation. In the instance of the Louisiana board, we have benefited on numerous occasions not only by the Council's ratings and standings of the various medical colleges and institutions, but also by its aid on questions of policy. The secretary of the organization, Dr. William D. Cutter, is always so willing to aid in any way possible that I sometimes feel that I call on him more than I should. He has helped us many times with advice that is always sound and cheerfully given, and we do want Dr. Cutter to know that the Louisiana board appreciates his efforts in our behalf.

In regard to the relationship of medical education to universal reciprocity, it is to be appreciated that with very few exceptions the medical colleges of this country have high standards of medical education which assure the profession and the public of graduates who are competent and adequately educated to practice medicine. The graduates of the few medical colleges in

\*Presented at the annual dinner of the Federation of State Medical Boards of the United States, Palmer House, Chicago, February 12, 1940.

this country which fail to meet the standard of requirements of the American Medical Association are not allowed the privilege of applying for examination in most states. With the present trend toward stricter regulations by these accrediting associations, it is certain that these few colleges will either have to meet present requirements or go out of existence, so that their graduates cannot be considered an obstacle to universal reciprocity.

The final disposition of universal reciprocity will naturally have to be decided on by members of the Federation of State Medical Boards. When this question is analyzed, one reaches the conclusion that it is entirely feasible and its adoption should not work a hardship on any of the state boards; on the contrary, it should be of decided benefit to the boards. Universal reciprocity will have to be worked out on a basis of medical education. Each board should always have the privilege of investigating the individual applicant and determining whether he or she is a proper person, with reference to character, ethics and the like, to practice medicine. Several questions must be ironed out and we should be willing to give and take. A number of factors present themselves for consideration in this regard. Some states have mixed boards because of cults, legislative acts, and so on. In others basic science examinations are required. The internship problem is another that differs among the states. Some boards have much higher educational and examination requirements than others. All of these differences, in my opinion, can be arranged so as to reach a happy medium. Two or three states provide no reciprocal relations. It is my reaction that these states, if they so desire, should not be disturbed in this self-satisfied feeling. However, it is most pleasing to note that there remains a very small number of these; in fact, the state of New York has, or is planning to adopt, or has recently adopted, rules and regulations for reciprocity with additional states.

One of the predominating obstacles to universal reciprocity is the basic science

law. Even though the basic science law is a good one and is very necessary in the states which require it, I cannot see any fairness in injecting it in the question of reciprocity. Louisiana has a board composed entirely of doctors of medicine. The state examination covers twelve subjects, including the basic science subjects. Graduates of recognized American medical colleges, with their premedical education and medical training, have covered this field thoroughly. If any individual meets all the requirements of a state examining board and passes a written examination which covers these subjects, why should he, when asking for reciprocity with a state that has a basic science law, be subjected to the embarrassment of taking an examination with men who are not graduates of recognized medical colleges? There is not the slightest objection to the basic science law, for states endeavoring to obtain the best possible solution to the question of medical licensure. On the other hand, if another state is so fortunate as not to be infested with reasons that require a basic science law, why should that state's licentiates be subjected to an examination in the basic sciences? I believe that the states that require the basic science law will realize the position of the other states and, I am sure, this question can be solved.

The question of internship or length of practice subsequent to licensure also differs in many of the states. I feel that this matter can be adjusted satisfactorily.

The Louisiana board has the following requirements for reciprocity:

1. Applicant must be 21 years of age, of good moral character, and, if not a citizen of the United States, must present first naturalization papers. Citizenship as a requirement for licensure was written into the Louisiana law in 1918.

2. He must appear in person before a member of the board and present completed application.

3. Satisfactory evidence of acceptable premedical education and an M. D. degree from a recognized medical college in the United States rated as class A—standard

American Medical Association—is required. The requirement of a class A diploma was also written into the Louisiana law in 1918.

4. Permanent certificate issued on examination by and from a state board of medical examiners with which Louisiana reciprocates must be presented.

5. Reciprocity fee is \$50.

6. Applicant must show evidence of having served one or more years of practice in the state from which he seeks reciprocity endorsement, or one year of accepted internship in an approved hospital in the United States. Effective with graduates of 1939, the one year of internship is obligatory.

We also check the individual's credentials through the office of the American Medical Association.

Louisiana has certain rules for the endorsement of a reciprocity applicant from Louisiana to another state board. The most important of those, in my opinion, is the requirement that *an application must be complete in every detail* before it will be endorsed by the Louisiana board. There are no exceptions to this rule, and the information on each application is compared with our records. In addition, we require for our files two letters of recommendation from reputable, practicing physicians, who personally know the applicant and live in his vicinity, and the fee of \$5. The applicant must, of course, be qualified to practice medicine in Louisiana for the current year.

The above requirements, to a very marked degree, are comparable with those of most of the other state boards. The Louisiana State Board of Medical Examiners is most willing to cooperate in every way to adopt any resolution which will make universal reciprocity a reality.

I have purposely refrained from going into detail in regard to several of the moot questions or the differences in certain requirements of the various boards. The question of bringing about a happy medium, of course, will be the function of the Committee on Interstate Endorsement of

the Advisory Council on Medical Education and Licensure. My purpose in presenting this subject is that I know it is of vital interest to us all. Reciprocity among the different medical boards has always been a bone of contention. If all the boards had the same requirements, the medical colleges, the graduates and the boards would have a much easier task. When all is said and done, the solution is one that will help promote further progress in medical education; it will assist very materially in weeding out physicians who have a tendency to hitch hike from one state to another. The boards with lower requirements would be benefited by having to raise their standards in conformity with other boards. The graduate physician would know he had to meet these requirements regardless of where he was to practice medicine.

When the question of universal reciprocity is discussed, the National Board of Medical Examiners naturally is to be considered. This body, composed of outstanding medical talent selected from the different national medical organizations, is recognized by the majority of the states. It has accomplished much good and its requirements are of the very highest. An individual with a certificate obtained after examination by the National Board of Medical Examiners should certainly be eligible for reciprocity with another state, provided there is no legal hindrance. Louisiana is one of the few states, at the present time, that does not accept certificates from this board for reciprocity. However, the board has had under consideration and discussion the possibility of endorsing certificates of the National Board of Medical Examiners, and hopes soon to reach a favorable solution.

It is realized that certain states will have to make changes in their Medical Practice Acts so as to conform with some of the recommendations for uniform endorsement. If universal reciprocity be accomplished, it is of sufficient importance that any state would be willing to alter its Medical Practice Act in order to conform with the requirements. Of course, a board would never

be asked to amend its medical law except to add a desirable feature.

This year marks the twenty-eighth birthday of the Federation of State Medical Boards. The accomplishments of this organization have been numerous and as members we have all received its benefits, assistance and encouragement in solving our most intricate problems. This organization has indeed been fortunate in having one who guided it from infancy to maturity—Dr. Walter L. Bierring. His leadership, his tireless efforts and his good judgment are in my opinion the predominating factors in its success.

---

## A SYMPOSIUM ON LOBAR PNEUMONIA\*

### THE PATHOLOGY

ANDREW V. FRIEDRICHS, M. D.  
NEW ORLEANS

The topic of the pathology of lobar pneumonia has been assigned to me, as one interested in this field. It is fully realized that in this particular disease the pathology is probably more familiar to the general man than perhaps any other disease of the human body. The time-old stages of congestion, red hepatization, grey hepatization and resolution, are familiar subjects to all who have passed through a medical course and have had any experience in practice. Naturally, I feel, therefore, that my remarks from this standpoint alone will be redundant and represent, if anything, only a refreshment of memory. There are, however, the phases of pathogenesis and pathologic physiology, integral units of pathology, which represent more interesting and important considerations in such a symposium.

All inflammations of the lungs, or pneumonitis, with consolidation due to outpouring of exudate into the alveoli, are called pneumonia. As we know, when the consolidation is diffuse and fairly uniform

throughout one or more lobes and proceeds synchronously in its phases, it is called lobar pneumonia, and when it is patchy and uneven, it is spoken of as lobular or bronchopneumonia. As a rule, only one such involvement exists at a time; however, there are instances wherein one may find a lobar pneumonia in one lung, and a lobular type in another. Usually lobar pneumonia is limited to one lobe, but may involve more than one lobe, and both lungs may also be affected.

It is impossible to discuss the pathology of lobar pneumonia without some allusion to the causal micro-organism. The effect must be linked with its provocative factor.

Lobar pneumonia is caused almost exclusively (over 90 per cent) by the pneumococcus. Other causative factors, such as the Friedländer bacillus, streptococcus, and other micro-organisms, may occasionally cause this particular type of lesion. It is well recognized, however, that the pneumococcus in early childhood may give rise to the lobular form of the disease.

Naturally, the discussion of the pneumococcal group, reaching, as it has, 32 different types and very recently probably 33, constitutes a very interesting, important and significant field. The investigation of the biochemistry of this micro-organism, in its various component parts, including both capsule and coccal body, such as the specific and non-specific polysaccharides or carbohydrates, the Fossman antigen and the nucleoprotein, has a more distinctive bearing on this infection than might at first be realized. While it is not within the scope of this presentation to delve into the bacteriologic considerations, it is in order to state that such biochemical studies have a definite purpose, other than that of mental and scientific calisthenics. Numerous efforts are being made to produce specific sera for the purpose of lysing or destroying the capsule of the pneumococcus, which constitutes a protective coat, and appears particularly during its invasion of the human body. To dissolve such capsules would permit of greater efficiency of action by the bodily defensive mechanisms, as well as by

---

\*Read before the Orleans Parish Medical Society, January 22, 1940.

biologic immune and, perhaps, chemotherapeutic factors.

#### VIRULENCE

The virulence of this micro-organism, independent of the accepted type variations, is a topic that merits some discussion. Gain of virulence is best regarded as a phenomena of biologic adaptation on the part of the micro-organism to the conditions prevailing in its environment. Analysis of the various factors which determine virulence in the pneumococcus leaves us with some definitely established facts. It appears that the power to multiply in the tissues of the host is, in some way, related to the vegetative power of the bacterial cell, as manifested by the rate of its proliferation *in vitro*.

Fulton and Dougherty devised a specially constructed mechanical device which permitted regular transfers of cultures at very short intervals, say of two, four, or eight hours. Under such conditions, the virulence of single cell strains of a virulent pneumococcus was raised; in some cases, ten million-fold or to such a point that a single diplococcus would kill the usual testing animals, namely white mice. Apart from such *in vitro* observations, virulent pneumococci, when freshly isolated from foci of disease, are usually found encapsulated; with the impairment of virulence on artificial media, there is a tendency for the capsule to disappear or to become less markedly developed. The inference, therefore, seems justified that the presence of capsular material stands in direct relation to virulence and pathogenicity. It has been shown that pneumococci present in the early stages of the disease are highly virulent for mice, whereas those in the resolution stage will fail to infect. It has long been suggested that the pneumococcus secretes a toxic principle which diffuses into the circulation. Aside from the consideration of the virulence, the host susceptibility is of importance. This constitutes those factors listed as predisposing causes, such as: (1) Age: The disease is most commonly found at the two extremes of life. (2) Sex: In adult life, it occurs two or three times as frequent in males as in females, probably because of the

greater exposure of males to inclement weather. (3) Exposure to cold is an undoubted inciting factor in many cases. The disease often begins suddenly a few hours after exposure. (4) Debilitating disease, such as cancer, decompensated heart disease, nephritis, or cerebral hemorrhage, very often terminate in pneumonia. (5) Severe trauma to any part of the body, particularly the brain and chest. (6) Alcoholism: Many chronic alcoholics develop pneumonia, because of their lowered resistance. (7) Exposure to patients with pneumonia; in the crowding of the individuals, such as in barracks, outbreaks often occur, and in these instances there is no doubt that the disease is spread by contact.

#### PATHOGENESIS

There are many divergent interpretations of the route by which the infection of the lung occurs after the pneumococcus has entered a susceptible subject. Many believe that there is an infection of the blood before the pulmonary lodgment takes place. Others believe that there is, primarily, an injury to the mucos and through this injury, the bacteria enter the lymphatics surrounding the trachea. During the course of pneumonia, pneumococcic septicemia is common. In the Rockefeller Hospital, where systematic blood cultures were made, 30.3 per cent were found positive; in those instances where repeated cultures were made 50 per cent were found positive.

The factor of greatest discussion and interest is the uniformity of pathologic change in a massive but restricted area, such as, for example, a whole lobe of a lung. It is in this connection that the lymphatic distribution has been more seriously considered than that of the bronchogenous or hematogenous route. McCallun, however, points out that such invasion of lymphatics represents a spread against the current flow, and states that an ebb and flow current would be necessary for dissemination. It is at this point that a more novel suggestion of primary sensitization by the pneumococcus, either because of its presence in the upper respiratory flora, or some earlier infection producing an allergic diffuse sensitivity, which, upon re-infection, produces

the massive reaction. This is, of course, in accord with the lobular type produced by the pneumococcus in early childhood as contrasted with the lobular form occurring in the adult.

Irrelevant of these various scientific efforts as to the manner of formation and unlike the value of the detailed bacterial investigations, the exact manner of massive uniform change is a physical fact. Herein, we arrive at the well-known stereotyped pathology of lobar pneumonia in its rhythmic sequence of stages.

#### PATHOLOGY

In lobular pneumonia, one or more lobes or one or both lungs may be affected. The lower lobes are involved much oftener than the upper. Very frequently the lower lobe shows complete consolidation with a strip of the upper lobe adjacent to the interlobar fissure also affected. This is explained by the fact that the lower border of the upper lobe is frequently supplied by a branch of the bronchus to the lower lobe.

There are four definite stages of lobar pneumonia which can be distinguished: the stage of engorgement, red hepatization, grey hepatization and resolution. The first of these anatomic changes, the stage of engorgement, is rarely ever seen at autopsy, except perhaps at the edges of an advancing consolidation. The character of the changes in the lung at this time is more or less constructed along the known course of inflammation elsewhere. The characteristic change found at this stage is a dilatation of the alveolar wall capillaries with blood and there is an exuding of fluid and a few leukocytes and red blood cells into the air cells.

In the second stage, that of red hepatization, so-called because the lung is red and solid like the liver, there is an abundant inflammatory exudate which fills the air cells and is clotted and these clots are firm and dry. This clotted exudate is made up of a coarse-meshed network of fibrin, studded with pneumococci, red blood cells, polymorphonuclear leukocytes, some desquamated endothelial cells and many mononuclear wandering cells. These latter cells are rarely found in the later stages. From a micro-

scopic point of view, the most impressive thing at this stage is the freshness and good state of preservation of the cellular elements. The red cells are intact, they show no sign of laking or hemolysis. The leukocytes are clearly outlined and many show active phagocytosis.

The gross appearance of the lung at this stage is very characteristic. The pleural surface over the involved area loses its normal gloss and is covered with a delicate, scarcely perceptible, layer of yellowish fibrin. Upon sectioning the lung, one finds the cut surface to be dry, rough and of a deep red color. The roughness is due to the slight projection of the plug of coagulated exudate from each alveolus. The involved lobe is firm and airless, while the remaining unaffected lobes crackle and crepitate under the finger and, upon pressure, a frothy material exudes from the alveoli and bronchi.

In the stage of grey hepatization, the third definite change occurring in this disease process, the involved lobe or lobes are of a reddish-grey to a homogeneous grey color. The microscopic findings are entirely different. Here, the alveoli are densely packed with a cellular exudate. The graceful network of fibrin is gone. It is packed together, often in compact masses. There is a great increase in the number of bacteria and also a marked increase in the number of polymorphonuclear leukocytes. Only the shadowy outlines of a few of the red blood cells may be made out here and there between the closely crowded leukocytes. The alveolar wall capillaries are no longer distended with blood, but are compressed by the mass of exudate. Many of the leukocytes have become granular, ragged and partly disintegrated. Many contain fine droplets of fat and some yellowish pigment. Many of the desquamated endothelial cells contain fat-droplets and pigment granules. At this stage, the pneumococci show degeneration and disintegration and lose their power to stain clearly. An interesting experiment carried out with the rabbit shows that these organisms have lost their power to infect. Animals inoculated with a mass of exudate from an area of

grey hepatization survived, while those inoculated with the same dose from an area of red hepatization succumbed.

Grossly, at this stage, the lung is enlarged, dense and heavy. The outer surface is covered with a much thicker and butter-like layer of fibrin, which can readily be peeled away. There may be an accumulation of turbid fluid in the pleural cavity. Upon sectioning, the cut surface is of a grey or yellowish-grey color, which is due to the laking of the red blood cells, the hemosiderin which is produced from their hemoglobin, and by the fat content of the leukocytes. The surface is not so dry or rough as in the previous stage. The moisture is believed to be due to the retraction of the fibrin setting free some serum in each alveolus.

The last stage, that of resolution, is very seldom seen at the autopsy table, except in those instances wherein the patient dies of some other cause. Those cases that have been studied showed a very remarkable change. The lung was very soft and friable. There was a certain translucence. The alveolar contents had lost their appearance of being in the form of plugs and the lung, as a whole, appeared grey and jelly-like.

At this time, however, the microscopic picture is not quite so pronounced. There only appears a more advanced disintegration of the leukocytes and fibrin. There is a liquefaction of the whole mass of exudate, by the action of the proteolytic ferments of the leukocytes. A very slight amount of it is expectorated. Most of the material is absorbed by the lymphatics and carried away.

The stage of healing, which is an aftermath of the stage of resolution, is practically never seen at the autopsy table. Really the only thing necessary is the replacement of the alveolar endothelium after the exudate is completely removed. At this point, it must be remembered that during this severe inflammatory affection, there is practically no infiltration of the lung tissue itself. The alveolar walls, the bronchial walls and perivascular tissues are not invaded by the bacteria and exudate. After all, this infection resembles one wherein

only the mucous membrane is involved and there is no invasion of the deeper structures.

Once the repair or replacement of the endothelial cells takes place, there is no remaining evidence of damage and after two weeks it is impossible to say that that lung had been the seat of a pneumonia.

It is to be noted that the term endothelium has been used rather than epithelium. The reason for this is that recent advances in histologic study have shown that the epithelium of the terminal bronchi of the embryo is dissipated at the time of alveolar dilatation and that only the endothelium of the capillaries remains as a lining.

#### COMPLICATIONS

My previous description of the pathology represents, of course, the ordinary sequence or pathogenesis of the pathology of pneumonia in the instance of uneventful recovery with the usual clinical crisis. It must be appreciated that wherein the battle, which is waged immunologically or constitutionally, rather than solely in the pulmonary structure, has been lost, death may ensue either at the transitional red-grey stage or in the stage of grey hepatization. Aside from death, wherein the invading enemy is the pneumococcus, through its virulence or, on the other hand, through the lack of proper body defense or both, produces a continued battle, the pathogenesis of complications is set in motion. Evidences of this loss of victory by the invaded subject may be manifested in the various complications so well known.

*First:* A failure of proper resolution or absorption of exudate may lead to secondary healing or organization of the exudate may lead to secondary healing or organization of the exudative material. Often while this is prevailing, the enemy is carrying on a more extensive injury in other areas, breaking down alveolar septa, and creating a massive softened exudate conforming in aspect to abscess formation.

*Second:* The pleural involvement may likewise be progressive and as a consequence, the pneumococcus, which is a pyogenic organism, may produce a suppurative exudate, either in the pleural space proper

or in the intralobar fissure areas, resulting thereby in empyema of either type. The primary or pleural cavity form is by far the most frequent.

Extrapulmonary lesions, either early or late in the disease, may also occur, such as meningitis, arthritis, pericarditis, ulcerative endocarditis, and various other such lesions occasioned by either excursions in the devitalized subject, or by an established septicemia in the overwhelmed host or by local extension.

#### PATHOLOGIC PHYSIOLOGY

Naturally, the physical findings and practically all clinical phenomena present in lobar pneumonia are dependent upon the abnormal functioning of various organic structures or, in other words, the pathologic physiology, which may ensue from various biochemical or actual tissue or cellular changes, together with the exudative processes present in this disease.

Primarily, the pneumococcus, through its factors of pathogenicity, brings about the pulmonary tissue changes already described. But this, of course, is only a part of the abnormalities which are produced in many structures of the body by this organism through its poisonous or toxic moieties. The physical signs discernible through the eye, fingers or stethoscope have their basis in the pathologic changes present. In other words, lying on the affected side, increased breathing of the normal lung, the fremitus changes, the bronchial breathing, the flat note, the friction rub and the like, are directly traceable to the actual pathologic processes. The increased rapidity of breathing, the cyanosis, the anoxemia may be of combined origin, including respiratory center disturbance.

Without detailed enumeration, it can be appreciated that the pathogenesis of cause and effect are directly responsible for the complete clinical syndrome, as well as the various types of complications that may occur. It should be realized therefore, that while the main conflagration or inflammatory changes are focused upon the pneumonitis or lung area involved, at the same time the smoke and destructive fumes are permeating the human edifice and wreak-

ing damage or altered function of various vital organic structures. It can readily be understood, that while attention may be centered upon the primary focus or lung lesions, in the interim the kidney damage, heart changes, neurologic system involvement, or other serious injury, may be the salient factors in the production of death.

In gist therefore, it is manifest that aside from the area of lesion, the disease has its important constitutional factors through which the pathologic physiology produced forms essential and vital considerations in the handling of such cases.

#### SUMMARY

It is to be appreciated that from the pathologic side, which would include cause and effect, of this interesting and important disease, is found the basis of the underlying principles involved.

The mere narration of the detailed changes concerned in the gross and microscopic pathology are only a component of the broad scope that should be encompassed through such a study.

It is of great importance that such a consideration must, of necessity, involve to a great extent the general study of all factors that are involved in such a case, including, of course, the complications.

From the etiologic standpoint, the immunologic study, especially from the therapeutic aspect, is of the greatest importance. Naturally, biologic or chemotherapeutic measures which would bring about the curtailment of the pathogenesis provoked by the offending micro-organisms must lead to recovery of the patient and the prevention of the very serious complications, both within the thoracic cage or elsewhere in the human host.

—o—

#### X-RAY DIAGNOSIS

M. D. TEITELBAUM, M. D.

NEW ORLEANS

Lobar pneumonia as defined by Reimann embraces a group of acute pulmonary infections caused by the pneumococcus and characterized by typical, striking and uniform clinical signs and symptoms. Pathologically, there is exudative inflammation



involving one or more lobes of the lung. This statement implies that no momentary translation of the pulmonary lesion to an x-ray film can warrant an unqualified diagnosis. It might be possible to diagnose the disease by this method alone were a series of films to be made at short intervals throughout the course of the illness, from the onset of symptoms to complete resolution, but nothing short of this would do. In actual practice correlation with physical examination and other laboratory procedures affords an approach which leads to correct conclusions in a very large percentage of the cases observed.

Rarely does a patient with lobar pneumonia reach the hospital before there is sufficient alveolar exudate to cast a shadow on the roentgenogram. Patients seen within 12 to 18 hours after the clinical onset may show massive dense consolidation, veil-like haziness, or small areas of clouding near the hilus or at the periphery. It has been estimated that the changes in any one lobe reach their maximum extent and density in about three days after the initial symptoms, but that considerable variation is present. However, it may safely be stated that if no x-ray findings are present in 48 hours, the clinical diagnosis is probably incorrect. The appearance of the lesion on the film corresponds to the actual status of the affected lobe more nearly than does the impression obtained from physical findings which tend to minimize its extent until full consolidation has been attained and which may, in some instances, be absent or minimal throughout.

There has always been some controversy as to the site of origin of the consolidation and the existence and frequency of hilus or central pneumonias. While they probably do occur, many which offer this appearance actually reach the periphery either anteriorly or posteriorly. Their lobar conformation can only be demonstrated by lateral projections. Others which lie in the paravertebral portion of the lung behind the heart may be completely overlooked unless further studies are made.

A lobe may be involved in part or as a whole. Frequently lower lobe pneumonias

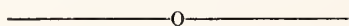
do not involve the prolongation of the lung into the costophrenic sulcus so that clouding in this area may be assumed to indicate extension to the pleura and the formation of an effusion. This belief, while in the main true, has the weakness of all similar rules of thumb when applied to any individual case. Regardless of the density of the clouding and its extension from base to very apex, the diagnosis of pleural effusion is justified only when there is a shift of the mediastinal structures or when the visceral and parietal pleura can be seen to be separated.

The presence of pneumonic consolidation affecting a lobe or a considerable part of one does not, as suggested above, necessarily connote a pneumococcal infection. Identical appearances may obtain in tuberculosis, confluent bronchopneumonias, particularly those produced by staphylococci and Friedländer's bacillus and bronchiogenic carcinoma. Usually an evaluation of the roentgen findings in terms of the data obtained by other means will lead to proper differentiation, but if this fails there is no recourse but to withhold the diagnosis and continue observation of the patient until a reasonable conclusion can be reached. Certainly it does no harm to treat the patient on the basis of the most probable diagnosis, if therapy be urgent, without accepting that diagnosis until proof is at hand.

There is very little evidence in those cases seen at the Touro Infirmary to support the hypothesis that bronchial occlusion and the resultant atelectasis play a large part in the pathogenesis of lobar pneumonia. The displacement phenomena observed in the usual type of atelectasis are not seen. Rarely, however, a patient whose history suggests pneumonia will prove to have a spontaneous massive atelectasis, otherwise typical in every respect and clearing rapidly after bronchoscopic aspiration of secretions.

While some regularity is present in the roentgen findings in lobar pneumonia before resolution begins, none can be observed thereafter. Resolution may precede, coincide with or follow the crisis, no intimate relationship being demonstrable. It may

originate in the periphery or in the hilus, although usually tardy in the latter region. It is frequently earlier in the older lesions, but this is not invariable and resolution may go hand in hand with advancing disease elsewhere in the lung. The process may be rapid or so leisurely that, particularly if all the antecedent facts are not available, it may simulate tuberculosis, bronchopneumonia or suppurative pneumonitis. Here again continued observation may offer the only clue. In one series, several patients were checked from 30 to 77 days after the onset of resolution, before a normal appearance on the roentgenogram could be noted. The patient with lobar pneumonia should not finally be discharged until his lungs are clear or until it is evident that the residual fibrosis has reached an irreducible minimum.



## THE SPECIFIC TREATMENT OF PNEUMOCOCCIC PNEUMONIA

A REVIEW OF RECENT LITERATURE AND  
AN ANALYSIS OF 100 CASES

J. O. WEILBAECHER, JR., M. D.†  
NEW ORLEANS

The treatment of pneumococcic pneumonia has undergone marked changes during the last few years, and the mortality of the disease, as the result of these changes, has undergone a very considerable reduction. The chief of these changes are the use of concentrated and refined rabbit antiserum, which is now available for each known type of pneumococcus, and, more recently, the use of chemotherapy in the form of sulfapyridine. Before these methods were introduced the mortality of pneumococcic pneumonia averaged 30 to 35 per cent. It has been reduced to an average of 10 per cent with the use of antiserum therapy and to an average of 7 per cent or less with sulfapyridine therapy, which is still too new, however, to permit generalizations. The introduction of these methods has nat-

urally, in spite of the efficacy, increased the problem of the physician. He must make the diagnosis of pneumonia promptly, he must identify accurately the etiologic agent in each case, and he must fully understand the indications, mode of action, and risk attached to each type of therapy.

### ANTISERUM THERAPY

*Action and Dosage:* The value of type specific antipneumococcic rabbit serum has been repeatedly shown<sup>1,2</sup>. It achieves its effect, according to Bullowa<sup>3</sup>, by neutralization of the pneumococcic antigen or capsular carbohydrate, thus sensitizing the bacteria and allowing their lysis or phagocytosis and destruction. For recovery to occur, all of the circulating antigen must be neutralized by antibody which is either formed actively in the body cells or is artificially introduced.

Bullowa calculated the amount of antiserum necessary to accomplish this purpose on the basis of observations that the blood of many patients who recover spontaneously from pneumococcic pneumonia contains from 10 to 20 units of antibody per cubic centimeter. The average adult, who has approximately 10 liters of circulating blood in his body, would therefore need from 100,000 to 200,000 units of antibody in his blood stream at any given time. Since the amount of actively formed antibody is unknown in a given case of pneumococcic pneumonia, it is important that a large amount of antiserum be injected within a short period of time.

Volini and Levitt<sup>4</sup> recommended that this be accomplished by the intravenous administration of the entire calculated amount of antiserum in a single dose by the following routine, which resulted in a thermic reaction in only 8 per cent of 69 cases so treated:

1. After a careful history and eye and skin tests have revealed that the patient is not hypersensitive, a test dose of 1 c. c. of undiluted antiserum is injected into the vein, very slowly, over a period of two minutes.
2. If there is no reaction from the initial dose, the balance of the basic dose of 100,-

†From the Department of Medicine of the School of Medicine of Louisiana State University and the Medical Services of Charity Hospital of Louisiana at New Orleans.

000 units is given by the same route at the rate of 1 c. c. per minute.

3. Even larger doses may be given as a single injection if the total amount administered does not exceed 35 c. c.

4. If an infusion of normal saline solution is to be given at the same time as the antiserum, the entire dose of the latter may be injected through the rubber tubing near the needle and be permitted to enter the vein at the rate of 1 c. c. per minute.

Bullowa<sup>5</sup> also recommended the intracutaneous injection of type specific polysaccharide as a further guide to adequate serum therapy and prognosis in infections of types I-VIII and type XIV.

*Effects:* In patients in whom the antiserum is effective, the temperature, pulse and respiratory rate return to normal within six to 24 hours. If bacteriemia is a complication, the return to normal may be delayed for 48 hours. The lesion in the lung clears up rapidly because the disease actually has been arrested and an artificial crisis has been induced.

Unsuccessful results, according to Bullowa<sup>3</sup>, may be due to several causes. The pneumococci may have been improperly typed, or may have been obtained from some part of the respiratory tract other than the diseased lung. More than one type of pneumococcus may have been identified and the one not responsible may have been selected for antiserum therapy. Some strains of pneumococci (type III, for instance) are apparently somewhat resistant to antiserum. Finally, the serum may have been given too late or in too leisurely a manner, or the dosage may have been inadequate.

*Reactions:* Reactions are infrequent after the use of the newer refined and concentrated sera, and serum sickness is unusual. Immediate anaphylactic shock can be prevented by a careful history and properly interpreted eye and intravenous tests. Thermic reactions are apparently less frequent when undiluted antiserum is injected in a single dose<sup>4</sup>.

#### CHEMOTHERAPY

Two months after Whitby<sup>6</sup>, in May, 1938, had reported that sulfapyridine was chemo-

therapeutically active in experimental pneumococcal infection in mice, Evans and Gaisford<sup>7</sup> were able to report a mortality of 8 per cent in 100 cases of pneumonia so treated, against a mortality of 27 per cent in 100 control cases, in which the drug was not used. Since that time many other published reports have made clear the value of sulfapyridine in pneumococcal pneumonia.<sup>8-12</sup>

*Action:* The action of sulfapyridine is not clearly understood, but the most widely accepted hypothesis is that its effect on the pneumococcus is bacteriostatic, and perhaps bactericidal as well.<sup>13-15</sup> The action is not immediate, for bacteriostasis does not become definite until approximately 24 hours after the administration of the drug is begun.<sup>11</sup> Sulfapyridine has no stimulating effect on the phagocytic cells or on the specific immune defences of the body,<sup>13-15</sup> though its action in pneumococcal infections is enhanced by the presence of type specific antibodies, and recovered patients have the same immunity as those who do not receive the drug.<sup>13-16</sup> Protective antibodies rarely develop before the sixth day and agglutinins rarely appear before the seventh day of the disease.<sup>15</sup>

Sulfapyridine does not alter the type specificity of the pneumococcus capsule.<sup>10,13,14</sup> Although all types of pneumococci are susceptible to its action, Maclean, Rogers and Fleming<sup>17</sup> found that the various strains differed in their sensitivity to it. They therefore suggested that tests to determine the resistance of each strain may have a clinical application in the selection of cases suitable for chemotherapy.

*Dosage:* Whitby<sup>14</sup> recommended a high initial dose of sulfapyridine, amounting to 5 grams within the first 12 hours. Two 2 gram doses are given at four hour intervals, followed by 1 gram at the end of the next four hours. A maintenance dose of 1 gram is given every four hours thereafter. Whitby believed that with this dosage it was possible to maintain blood levels of 18 mg. of sulfapyridine per 100 c. c. of blood. It was his opinion that pneumococci may become resistant (or fast) to the action of the drug if repeated or prolonged courses of the drug

are given, and for this reason he emphasized the importance of a large initial dosage.

Evans and Gaisford<sup>7</sup> suggested an initial dose of 2 grams to be followed by 1 gram every four hours. They stressed the importance of continuing the therapy for a sufficient period of time, and cited two of their cases in which the pneumonic process had recurred because this precaution had not been observed. Long and Wood<sup>10</sup> emphasized the same possibility and suggested the following routine for adult patients moderately ill with pneumococcic pneumonia:

1. As soon as the clinical diagnosis of pneumonia is established 4 grams of sulfapyridine are administered.

2. A dosage of 1 gram is then administered every four hours (day and night) until the temperature has been normal for 48 hours.

3. A dosage of 1 gram is administered every six hours until resolution is well under way.

4. A dosage of 0.5 gram is administered four times a day until the patient is ready to leave his bed.

5. If, the day after treatment with sulfapyridine is begun, the concentration of "free" sulfapyridine in the blood is under 4 mg. per cent and the rectal temperature is not below 101° F., monohydrate sodium sulfapyridine is administered intravenously in doses of 0.06 gram per kilo of body weight. The peroral administration of the drug is continued by the usual routine.

Long and Wood<sup>10</sup> listed, as further indications for intravenous sulfapyridine, massive infections, severe nausea and vomiting, and recent surgical procedures in which the peroral use of the drug would be undesirable. Flippin<sup>18</sup> used the drug both intravenously and intramuscularly, but Gaisford recommended the intramuscular route for parenteral therapy and advocated injections at four hour intervals. He considered that it can be safely given to children and infants in appropriate doses by the intramuscular route.

Long<sup>10</sup> recommended that in preparing sodium sulfapyridine for intravenous use, the required amount of the drug be dis-

solved in enough sterile distilled water to make a 5 per cent solution. In children and infants the dosage of the drug, whether it is to be used orally or intravenously, should be calculated on the basis of body weight in proportion to the dose used for the average adult. Bullowa used the sodium salt in tablet form orally because it is absorbed more quickly in this form and acetylation appears later.<sup>5</sup>

*Effects:* In most patients there is a prompt fall in temperature to 99° F. or even lower within 36 to 48 hours after the drug is administered. The respiratory rate is slowed, as is the pulse rate, though to a lesser degree, and the patient feels much improved except for mental depression or other toxic effects to be attributed to the drug itself. The physical findings in the lungs clear up more slowly and may persist for as long as a week.

If such a response does not occur promptly, several possible explanations suggest themselves. The dose may have been inadequate, or absorption may have been insufficient because of vomiting or because of the development of a paralytic ileus. In such cases, the blood levels of free sulfapyridine should be determined, even though no direct connection has ever been shown between them and clinical improvement. The explanation may be individual variations in the ability to absorb and conjugate sulfapyridine to the acetyl form, as has been pointed out by Long and Wood.<sup>10</sup> Whatever the reason, patients who show no response to oral sulfapyridine therapy within 24 to 36 hours present indications for the parenteral use of the drug or of type specific serum.

*Toxic Reactions:* The most common toxic reactions to sulfapyridine are nausea and vomiting,<sup>8, 10, 14</sup> which may become severe enough to prevent oral medication. The disturbance is not due to gastric irritation but to the action of the drug on the central nervous system.<sup>19</sup> Cyanosis<sup>8, 10, 14</sup> is also common, but is not of itself a sufficient indication to discontinue the therapy.

The incidence of the more serious toxic effects of sulfapyridine is difficult to deter-

mine because clinical reports vary widely and because sufficient time has not yet elapsed to permit a proper evaluation of the drug. Granulopenia<sup>7, 10, 20-24</sup> has been frequently observed in minor degrees but has been severe in only a few patients. Three fatalities from agranulocytosis are on record: two were in children and one occurred six days after the drug had been discontinued.<sup>24</sup> This manifestation seems more likely to occur in children. Acute hemolytic anemia has been occasionally reported, and lesser grades are rather frequent when prolonged treatment is necessary.

Patients who receive sulfapyridine excrete in their urine free sulfapyridine as well as crystals of acetyl sulfapyridine. Uroliths of such crystals have been demonstrated in animals by Antopol and Robinson<sup>25</sup> following the administration of repeated doses of the drug, but they also showed that such concretions are unlikely to form after single large doses. It would not be possible to visualize them by x-ray unless calcium were subsequently deposited around them.

Hematuria occurs in approximately 5 to 7 per cent of patients who receive sulfapyridine<sup>8</sup> and is believed to result from mechanical damage by the crystals. It may be associated with abdominal pain and nitrogen retention, due to ureteral obstruction.<sup>26</sup> Two fatal cases have been reported, one in a young adult<sup>9</sup> and one in a child who developed abdominal pain and nitrogen retention during treatment.<sup>27</sup> Necropsy on the child revealed bilateral ureteral obstruction caused by clumps of the crystals, and it was then suggested that cystoscopy to dislodge the stones might have been of benefit.<sup>27</sup> Long and Wood are as yet uncertain as to whether the use of sodium bicarbonate will influence the formation of these uroliths. In their opinion the appearance of only 10-20 red blood cells per high power field does not indicate discontinuation of the drug, but their presence in larger numbers does. There is no known method of predicting renal damage in sulfapyridine therapy, but it would seem of advantage to know the level of acetyl sulfapyridine in

patients who are given large doses of the drug or in whom blood levels of "free" sulfapyridine are maintained above 4 mg. per cent.<sup>28</sup>

Whether the drug produces a true nephritis or hepatitis is not yet known, but the appearance of jaundice in a case observed by Long and Wood suggested the possibility of liver damage.<sup>10</sup> Morbilliform rashes<sup>8, 10</sup> are of frequent occurrence, and, although they are not usually serious, they present an indication for discontinuance of the drug. Mental depression occurs in many cases, and true psychoses have been observed in approximately 1 per cent<sup>8</sup>. Drug fever has been observed in a few instances,<sup>8, 10</sup> but is difficult to evaluate. In spite of these and other possible complications, the only established contraindication to the institution of sulfapyridine therapy is a history of a previous toxic reaction to sulfapyridine or one of its related compounds.

#### REPORT OF CASES

The 100 cases of primary pneumococcal pneumonia analyzed (table I) were treated at Charity Hospital of Louisiana at New Orleans between July 1, 1939, and January 15, 1940, with a mortality of 3 per cent. Only individuals above five years of age are included in this analysis, and all cases were proved by roentgenologic and bacteriologic studies. These cases were treated, as far as possible in rotation, as follows: 60 cases (with one death) by sulfapyridine; 30 cases (with two deaths) by sulfapyridine and serum; 10 cases (with no deaths) by serum.

The low mortality is to be explained in several ways. The disease was relatively mild, as it usually is in late summer and early winter. Bacteriemia was not present in any instance. In my own opinion, however, the low mortality is largely due to the vigilance of the admitting physicians and the cooperation of the resident and visiting staffs on the Tulane University, Louisiana State University and Independent medical services in Charity Hospital, which insured prompt treatment in all cases. In some instances specific treatment was being ad-

TABLE 1

Type	No. Cases	Treated With Sulfapyridine		Treated With Sulfapyridine & Serum			Treated With Serum			Total	
		Av. Hrs. Fever	Deaths	No. Cases	Av. Hrs. Fever	Deaths	No. Cases	Av. Hrs. Fever	Deaths	by Types	Total Deaths
Pneumococcus I.....	19	30	1	10	37	0	3	20	0	32	1
III.....	3	32	0	6	30	0	0	0	0	9	0
IV.....	6	25	0	3	31	0	1	12	0	10	0
V.....	5	33	0	1	24	0	0	0	0	6	0
VI.....	0	0	0	0	0	0	2	42	0	2	0
VII.....	5	29	0	4	24	0	1	36	0	10	0
VIII.....	8	37	0	1	24	0	2	24	0	11	0
IX.....	0	0	0	1	18	0	0	0	0	1	0
XI.....	1	36	0	2	48	1	0	0	0	3	1
XII.....	2	36	0	0	0	0	0	0	0	2	0
XIV.....	1	96	0	0	0	0	0	0	0	1	0
XV.....	1	72	0	0	0	0	0	0	0	1	0
XVII.....	2	72	0	0	0	0	1	12	0	3	0
XVIII.....	1	12	0	0	0	0	0	0	0	1	0
XIX.....	3	24	0	0	0	0	0	0	0	3	0
XXII.....	1	120	0	0	0	0	0	0	0	1	0
XXIII.....	1	48	0	0	0	0	0	0	0	1	0
XXIV.....	0	0	0	1	72	0	0	0	0	1	0
XXIX.....	0	0	0	1	148	1	0	0	0	1	1
?.....	1	32	0	0	0	0	0	0	0	1	0
.....	60	.....	1	30	.....	2	10	.....	0	100	3

ministered as early as 30 minutes after the patients had been admitted.

The single death in the group of sulfapyridine-treated cases occurred in a 65 year old negro male who did not respond to massive oral therapy. Whether he received the full dosage of the drug is highly questionable, since he vomited frequently; sodium sulfapyridine was not then available for intravenous use.

The two deaths in the 30 cases treated by the combined therapy are readily explained: This group is composed of patients whose disease was more severe and who for the most part had not responded to therapy with either sulfapyridine or with serum alone. One of the patients who died was a 65 year old negro male who had uremia and who did not show response to any therapy at any time. The second death in this group occurred in a 37 year old negro male who was given 200,000 units of antiserum, followed by massive oral and intravenous therapy with sulfapyridine, the dosage being sufficient to maintain high blood levels. Necropsy revealed that all five lobes of the lungs were involved, and type XXIX pneumococcus, which had previously been isolated by sputum examination and lung puncture, was also isolated from the lung itself.

There were no complications in the re-

maining cases, and no serious toxic effects followed treatment. Two patients developed thermic reactions after the administration of serum. In the sulfapyridine group, vomiting and cyanosis were fairly frequent, but neutropenia and acute anemia were not observed in any instance. Seven patients exhibited microscopic hematuria, but no gross hemorrhages occurred.

#### ROUTINE OF TREATMENT

Two agents are thus available which have been proved to be very effective, as well as reasonably safe, in the treatment of pneumococcal pneumonia. The full value of drug therapy remains to be established, but in the light of present knowledge, we are justified in carrying out such a routine as the following, which is modified from that suggested by Plummer,<sup>29</sup> as soon as the clinical diagnosis of pneumonia is established or seems reasonably certain:

1. In the absence of contraindications, sulfapyridine is administered immediately by the oral route.

2. The sputum is examined and typed for pneumococci.

3. A urinalysis, total red and white blood cell count, hemoglobin determination, and blood culture are made at once.

The urinalysis is repeated daily, and the total red and white blood cell count and hemoglobin determination every 48 hours.

The examinations are made more frequently if any decreases from the normal blood picture are observed, and are continued, though at longer intervals, for 10 days after the sulfapyridine therapy has been discontinued.

4. Antipneumococcal serum (rabbit) should be given, in addition to sulfapyridine, in the following cases, after the specific type of pneumococcus has been determined and precautions have been taken to prevent possible serum reactions:

A. All type III pneumonias.

B. All cases in which more than one lobe of the lung is involved.

C. All cases associated with bacteremia or with complications.

D. All cases in which the diagnosis is not made until after the third day of illness.

E. All cases in which the patient is 65 years of age or older.

F. All cases in the last weeks of pregnancy or in the puerperium.

G. Certain cases of postoperative pneumonia or pneumonia subsequent to some debilitating illness.

5. The soluble salt of sulfapyridine (sulfapyridine sodium monohydrate) should be given intravenously in the following circumstances:

A. When serum is indicated but cannot be given and it is desirable to maintain high blood levels of sulfapyridine.

B. When the infection is massive or fulminating.

C. When there is excessive vomiting or the absorption of the drug is questionable for other reasons.

6. The blood level of "free" sulfapyridine should be determined to insure adequate results from the drug and to control the dosage when it is administered intravenously. When blood levels of "free" sulfapyridine are maintained above 4 mg. per 100 c.c., it may be advisable to determine the level of the "conjugated" form.

7. Sulfapyridine therapy should be continued in the original dosage for two or three days after the temperature has fallen to 99° F. or lower, and in reduced dosage until resolution is complete.

## SUMMARY

Recent literature of serum and sulfapyridine therapy in pneumococcal pneumonia has been reviewed, and the mode of action and relative advantages and disadvantages of each method have been briefly considered. One hundred cases treated by sulfapyridine, serum, or combined therapy have been analyzed, and a routine of treatment has been suggested.

I wish to thank Dr. John H. Musser, of Tulane University, and Dr. Edgar Hull, of Louisiana State University, for their cooperation in permitting the use of the patients on the services of their respective departments for this study.

## REFERENCES

1. Horsfall, F. L., Jr., Goodner, K., and MacLeod, C. M.: Type specific antipneumococcus rabbit serum, *Science*, 84:579, 1936.
2. Bullowa, J. G. M.: *The Management of the Pneumonias*, New York, Oxford Press, 1937.
3. Bullowa, J. G. M.: Serotherapy of the pneumonias, *J. A. M. A.*, 113:1402, 1939.
4. Volini, I. F. and Levitt, R. O.: The treatment of pneumococcal pneumonia with concentrated rabbit serum, *J. A. M. A.*, 113:1314, 1939.
5. Bullowa, J. G. M.: Personal communication.
6. Whitby, L. H.: Chemotherapy of pneumococcal and other infections with 2—(p-aminobenzenesulphonamido) pyridine, *Lancet*, 1:1210, 1938.
7. Evans, G. M., and Gaisford, W. F.: Treatment of pneumonia with 2 (p-aminobenzenesulphonamido) pyridine, *Lancet*, 2:14, 1938.
8. Pepper, D. S., Flippin, H. F., Schwartz, L., and Lockwood, J. S.: Results of sulfapyridine therapy in 400 cases of typed pneumococcal pneumonia, *Am. J. Med. Sci.*, 198:22, 1939.
9. Gaisford, W. F.: Results of the treatment of 400 cases of lobar pneumonia with M & B 693, *Proc. Roy. Soc. Med.*, 32:1070, 1939.
10. Long, P. H., and Wood, W. B., Jr.: Observations upon the experimental and clinical use of sulfapyridine. II. The treatment of pneumococcal pneumonia with sulfapyridine, *Ann. Int. Med.*, 13:487, 1939.
11. MacLeod, C. M.: Chemotherapy of pneumococcal pneumonia, *J. A. M. A.*, 113:1405, 1939.
12. Plummer, N., and Ensworth, H. K.: Sulfapyridine in the treatment of pneumonia, *J. A. M. A.*, 113:1847, 1939.
13. Fleming, A.: Antibacterial action *in vitro* of 2—(p-aminobenzenesulphonamido) pyridine on pneumococci and streptococci, *Lancet*, 2:74, 1938.
14. Whitby, L. E. H.: Chemotherapy of bacterial infections (Bradshaw lecture), *Lancet*, 2:1095, 1938.
15. Finland, M., Spring, W. C., Jr., and Lowell, F. C.: Immunological studies on patients with pneumococcal pneumonia treated with sulfapyridine, *J. Clin. Invest.*, 19:179, 1940.
16. Spring, W. C., Jr., Lowell, F. C., and Finland, M.: Studies on the action of sulfapyridine on pneumococci, *J. Clin. Invest.*, 19:163, 1940.
17. Maclean, I. H., Rogers, K. B., and Fleming, A.: M & B 693 and pneumococci, *Lancet*, 1:562, 1939.
18. Flippin, H. F.: Personal communication.
19. Marshall, E. K., Jr., and Long, P. H.: The intravenous use of sodium sulfapyridine, *J. A. M. A.*, 112:1671, 1939.
20. Johnston, F. D.: Agranulocytosis following treatment with M & B 693, *Lancet*, 2:1200, 1938.
21. Coxon, R. V., and Forbes, J. R.: Agranulocytic angina following administration of M & B 693, *Lancet*, 2:1412, 1938.

22. Barnett, H. L., Hartman, A. F., Perley, A. M., and Ruhoff, M. B.: The treatment of pneumococcal infections in infants and children with sulfapyridine, *J. A. M. A.*, 112:518, 1939.

23. Hodes, H. L., and others: Use of sulfapyridine in primary pneumococcal pneumonia and in pneumococcal pneumonia associated with measles, *J. Pediat.*, 14:417, 1939.

24. Dolgopol, V. B., and Hobart, H. M.: Granulocytopenia in sulfapyridine therapy, *J. A. M. A.*, 113:1912, 1939.

25. Antopol, W., and Robinson, H.: Urolithiasis and renal pathology after oral administration of 2 (sulfanilylamino) pyridine (sulfapyridine), *Proc. Soc. Exper. Biol. & Med.*, 40:428, 1939.

26. Southworth, H., and Cooke, C.: Hematuria, abdominal pain and nitrogen retention associated with sulfapyridine, *J. A. M. A.*, 112:1820, 1939.

27. Tsao, Y. F., McCracken, Mary E., Chen, J. L., Kuo, P. T., and Dale, C. L.: Renal complications in sulfapyridine therapy, *J. A. M. A.*, 113:1316, 1939.

28. Roberts, E. F.: Personal communication.

29. Plummer, Norman: Personal communication.

## THE DIAGNOSIS OF GOUT\*

MORGAN W. MATTHEWS, M. D.†  
SHREVEPORT, LA.

The history of gout can be traced back to the beginning of recorded medicine. Hippocrates described the condition, using a Greek phrase meaning "the unwalkable disease." The writings of Galen, Celsus, and Soranus in the first century A. D. contain references to this condition. Sydenham, in the seventeenth century, wrote a treatise on gout that is one of the best clinical descriptions of the disease on record. Notwithstanding the antiquity of gout and its excellent clinical description by authors too numerous to mention, gout still remains a forgotten disease.

### INCIDENCE

Current statistics on the incidence of gout are contradictory. Cohen estimated that there were 414,926 admissions to the Philadelphia General Hospital between the years 1905 and 1929. A diagnosis of gout was made 47 times, an average of two cases a year. From 1929 to 1935 in the same institution, a diagnosis of gout was made 30 times in 146,992 admissions. Monroe found that only 59 cases of gout were admitted to the Peter Bent Brigham Hospital

\*Presented before the sixty-first annual meeting of the Louisiana State Medical Society, April 23, 1940.

†From the Department of Medicine, The Highland Clinic, Shreveport.

in Boston in a twenty-year period. In 1935 only five cases of gout were seen in the Arthritis Clinic of the Presbyterian Hospital in New York City. Volini wrote that the incidence of gout was two cases per 100,000. These figures would indicate that gout is a rare disease. However, Cohen saw over 40 cases of gout in a five-year period. Herrick and Tyson in private practice reported six cases in a single year. Volini in 1935 reported ten cases, two from private practice and eight at the Cook County Hospital in Chicago. Hench found gout present in 6.5 per cent of 200 consecutive patients admitted to The Mayo Clinic with arthritic complaints. The above statistics do not give an accurate index of the incidence of gout because the requirements of different physicians for a diagnosis of gout differ so. Hench writes, "Only one of four or five cases of gout is correctly diagnosed in its early stages. But in some quarters only one of two or three patients who receive a diagnosis of gout actually has the disease." It is very probable that the frequency with which a diagnosis of gout is made varies directly with the index of suspicion that the disease exists. Hench remarks, "It is the suspicion of gout, unfortunately not the disease that has disappeared. Awareness of gout should again have a place in the thought of American physicians. Suspicions often can be confirmed by the enumerated characteristics of gout. If these criteria are used gout will assume not the incorrect position of false high frequency of a century ago or that of the false rarity of the present, but its rightful incidence, about 5 to 8 per cent of cases in an arthritis clinic." Hench, in a study of 100 cases of gout, noted that an average of 15 years elapsed between the first attack of gout and the first diagnosis of the disease. He attributed this to the fact that physicians never think of gout or dismiss it, because of the belief that the disease is extinct or one that the patient "just couldn't have." Hench wrote, "The necessity of taking 1500 years to diagnose 100 cases of classical gout does not indicate a proper understanding of this disease." The Editorial Committee of the American Rheu-



matism Association in 1935 wrote, "Gout has by no means disappeared, as the statistics of several critical observers reveal. By them it is seen with increasing frequency; its proportionate incidence has been noted. Nor has present day gout 'gone modern,' or changed its character in any important particular. The gout of today presents the same clinical pattern, the same diagnostic criteria, the same characteristic 'chain of fits' as in Sydenham's day."

It is likely that gout in both the past and present masquerades under such diagnoses as rheumatic fever, infectious arthritis, acute arthritis, bunions, foot strain, fallen arches, sprained ankle and numerous other even less specific terms.

Gout in most instances (98 per cent according to Hench) presents a typical clinical pattern that distinguishes it from the majority of diseases with which it is apt to be confused. Since these symptoms are so characteristic and are so frequently misinterpreted, a review of the classical symptoms should be in order. It is hoped that the frequent plagiarisms on the material of Hench will be forgiven. He has done more than any other one physician in the United States to make the medical profession "gout conscious" and it is natural that the pupil should follow in the footsteps of the master.

#### GENERAL CONSIDERATIONS

*Sex Incidence:* About 98 per cent of patients with gout are males. A diagnosis of gout in a female should be made most carefully. Pretophaceous gout is occasionally seen in the female, tophaceous gout rarely. The disease in women follows the same pattern as it does in males. The low incidence of gout in females affords an excellent index of the correctness of the diagnosis by a particular physician. Should the incidence of gout in females exceed 5 per cent, the condition is probably being diagnosed when it is non-existent.

*Age Incidence:* Gout is essentially a disease of middle life, usually appearing after the age of 40 years. Hench writes, "It (gout) is the most common form of acute arthritis among men more than forty and should be first thought of if gonorrhoea and

acute trauma are excluded." However, neither extreme youth nor advanced age are exempt from the disease. Twenty-eight per cent of Monroe's 61 patients were under the age of 30 years and two of the patients were 10 and 12 years respectively. Allbutt cites one patient in whom the first attack occurred at the age of 80 years. In the younger age group the inability to handle the unknown factor (uric acid?) that produces gout is so marked that the disease becomes manifest at an early age. In other cases the disease is precipitated by the presence of an associated disease such as polycythemia, leukemia or by treatment of an associated disease, as the ketogenic diet in epilepsy.

*The Personality of the Patient with Gout:* Almost without exception persons with gout are hale, hearty, dynamic, well met and enjoy social contacts. Generally speaking they are inclined to be overweight and possess an unusual degree of physical and mental energy. Rarely is gout seen in shy, introspective, hypersensitive individuals of an asthenic habitus. The majority of patients with the disease live well and enjoy more of the luxuries of life than is commonplace. Salesmen, ministers, business executives, politicians and district managers are frequently afflicted with gout. The consumption of rich food, high living and alcohol is not necessary for the development of gout, as the disease is found in vegetarians, teetotalers and persons who live simply.

#### THE CHARACTERISTIC FEATURES OF GOUT

*Prodromal Symptoms:* An attack of gout may come on with dramatic suddenness but as a rule it is preceded by certain premonitory signs and symptoms. These precede the actual attack by a variable period ranging from one to 36 hours. The patient becomes pettish, snappy, irritable, depressed and sleeps poorly on the night preceding the attack. Often a headache is present on awakening; the abdomen may feel uncomfortable and occasionally a mild diarrhea is present. Generally speaking the affected individual feels out of sorts. Occasionally the attack is preceded by an unusual feeling

of exhilaration and well being. Diuresis is not an uncommon prodromal symptom.

*The Attack Itself:* The affected joint begins to ache and becomes painful on weight bearing. When the great toe joint is the seat of the attack pressure of the shoe becomes unendurable. Within a period ranging from an hour to two days the pain progresses to a degree that is described as the "worst ever." Individuals who have experienced both renal and biliary colic state the pain in these conditions is mild as compared with the pain in gout. The severity of the pain is such as to make an indelible impression in the memory of the patient. Usually he is able to recall minute incidents preceding, during and after attacks experienced years before. The case of Rutledge and Bedard illustrates this point. This patient remembered that ten years before at 4 p. m., after returning from an automobile trip, that redness, swelling and pain in an ankle began. Pain became progressively worse and at 11 p. m. he had to be carried out of a theater and given morphine for the relief of pain. The rapidity with which pain reaches a maximum degree of intensity is characteristic. An individual may be comfortable before an attack and an hour later require an ambulance to get home and morphine for the relief of pain. The affected joint is held immobilized, the slightest movement causes excruciating pain. Pressure of the bed clothing or jarring of the bed by persons walking across the room produces marked discomfort. The pain has a tendency to undergo nocturnal exacerbations, however amelioration during the day is relatively insignificant. An attack lasts a variable length of time, depending on the period over which recurrent attacks have taken place. Early in the disease the duration of the attack ranges from three to ten days (average five days). The rapidity with which joint symptoms disappear is also characteristic of the disease. Individuals with gout may pass an uncomfortable night under the influence of narcotics and sedatives and awaken the following morning with the pain markedly relieved. In 24 hours they may cautiously bear weight on

the affected joint. On the following day they may be able to get around with the aid of a cane. The third day frequently finds them back at work. After an acute attack subsides it is characteristic that function of the affected joint is completely restored, no residuum of the attack remaining.

*Description of the Affected Joint:* The skin overlying the affected joint becomes bluish-red in color, turgescient, hot, sweaty, throbbing and shining and gives the examiner the impression that the joint is about to rupture. When the great toe is involved the tenderness is maximum on the mesial aspect. Bunion joints have been incised and the great toe has been removed surgically in several persons I have seen. When the attack subsides the joint rapidly is restored to normal. Subsidence of pain is followed by an annoying itch and desquamation of the skin that in itself is suggestive of the disease.

*The Duration of the Attack:* This depends, as a rule, on the length of time over which the disease has been recurring. In the initial stages an attack lasts from two to ten days (average five days). As the disease continues attacks last from ten to 14 days, later three weeks, and still later a month to six or eight weeks. Finally after ten to 40 years (average 12 years) a chronic gouty arthritis occurs. Until the chronic stage sets in each attack is followed by a complete restitution of joint function. The chronic stage is characterized by a failure of the affected joint to return to a completely normal state (incomplete remission) after an acute attack subsides.

*The Frequency of Attacks:* This is exceedingly variable. Allbutt refers to one patient who had only two attacks in a life time, at the ages of 27 and 88 years respectively. Rutledge and Bedard describe a patient who had 13 typical attacks in a period of about 10 years. As a general rule as the length of time that the disease has been present increases, the attacks increase both in frequency and duration. The case of Rutledge and Bedard illustrates this point. At first the attacks recurred once or twice a year. After a period of nine

years, four attacks occurred in a single year. The first attack lasted ten days; the tenth, 60 days.

*The Time at Which Attacks Begin:* An acute attack of gout may occur at any hour but characteristically begins in the late afternoon or early morning. The majority of attacks begin between 2 and 7 a. m. More cases of gout are seen in the spring and fall than at other seasons. The months of March, April and May are the most popular months for the attack to occur in.

*The Joints Involved:* In the early attacks, as a rule, only the feet are involved, the bunion joints, ankles, arches and the Achilles tendons being affected. After about five years the knees become the seat of the attack. The upper extremities are involved only after the disease has been recurrent over a period of fifteen or more years. The wrists and elbows are the joints most frequently affected when the disease attacks the upper extremities. It is axiomatic that a diagnosis of gout should be made with care if the shoulders, hips and spine are involved in an arthritic process. Scudamore, in a series of 516 cases, found that a single great toe was affected in 314 (60 per cent), both great toes in 27; then in order of frequency, instep 25, ankle 15, knee 11, Achilles tendon 11, and hand nine. The great toe joint was the first joint affected in 60 per cent of Hench's 100 cases and in 90 per cent of Monroe's 61 cases. It should be noted that although the bunion joint is the joint most frequently affected that either the ankle, instep, Achilles tendon or knee are the first joints attacked in about 40 per cent of cases.

#### FACTORS THAT PRECIPITATE THE ATTACK

*Gastronomic and Alcoholic Celebrations:* An acute attack of gout is likely to occur during or following periods in which both food and drink are taken in excess. Christmas, New Year's, Thanksgiving, the Feast of the Passover, hunting trips, birthdays, lodge nights and sales conventions frequently precede an acute exacerbation. At these times a large amount of food high in purine content is ingested, leading to an increase in uric acid or the unknown (x) substance that precipitates an attack. The

exact role alcohol plays in such cases is unknown but it is probable that alcohol raises the renal threshold of some substance normally excreted, interfering with its proper elimination. It should be remembered however that gout is not necessarily a rich man's disease and that the disease occurs in teetotalers, vegetarians and persons of moderate means. When the disease is found in the last named group of persons, it is likely that the ability of these individuals to handle purines is markedly impaired.

*Following Trauma of Various Types:* Many attacks of gout follow relatively mild trauma, as turns of the ankle, long automobile trips, standing on the rungs of a ladder, or a week-end of golf. Often these cases receive such diagnoses as sprained ankle, foot strain, fallen arches and traumatic arthritis. According to Hench, the number of arch supports that a patient has worn offers an excellent index of the length of time that the disease has been present. He noted that the World's Fair in Chicago brought a host of patients with gout to Rochester. The exciting cause in these cases was the trauma of unaccustomed exercise. The resultant disability of relatively insignificant trauma is out of all proportion to the trauma that precipitates it.

*Surgical Procedures:* Hench has stated, "An acute arthritis within the first six days after an operation is due to gout in 90 per cent of cases." This should be remembered because, if the operation is an alveolectomy or tonsillectomy such an arthritis is apt to be attributed to the "stirring up" of a focus of infection. In most cases of chronic infectious arthritis the non-specific effects of the anesthetic, rest in bed and starvation produce an amelioration rather than an aggravation of symptoms.

*Treatment for Some Associated Disease:* Acute exacerbations of gout are apt to follow injections of salyrgan, liver extract, insulin, ergotamine tartrate and ketogenic diets.

*The Association of Other Diseases:* Gout is more common among persons with leu-

kemia and polycythemia than mere coincidence allows (Hench). The presence of uncontrolled diabetes, hyperthyroidism and metabolic disease in general makes gout more difficult to control. Treatment of the associated disease is necessary before proper control of the gout is obtained.

*Emotional Disturbances:* The disease is frequently difficult to control in individuals living in environments conducive to mental and emotional strain. Control of emotional factors renders acute exacerbations less frequent. Emotion in some unexplained manner makes the trigger mechanism that sets off an acute attack more sensitive.

*Infection:* Many authors believe that infection frequently precipitates acute attacks of gout. In my experience infection has not been prominent among the precipitating factors of acute seizures.

*Lead Poisoning:* Plumbism is mentioned by a number of authors as a factor responsible for many acute exacerbations. In a series of 61 cases, Monroe found six cases of plumbism. Allbutt cites several instances of patients in whom lead poisoning was a precipitating factor. Judging from the present day literature, lead poisoning is not as important a factor as it was formerly.

#### THE DIAGNOSIS OF GOUT

The classical features of gout are said to be tophi, podagra (painful bunion joint), hyperuricemia and roentgenographic evidence of erosion of articular and juxta-articular bone. Tophi are the one absolute pathologic proof of gout. They may be found in any location but have a peculiar affinity for structures having a poor blood supply. The cartilage of the ears was the site of predilection in 53 per cent of Hench's cases and 90 per cent of Monroe's. Other favorite locations are the olecranon and prepatellar bursae, Achilles tendons, the toe and finger joints. The absence of tophi does not exclude the disease. Hench states, "At a given time a physician may find tophi in only about 40 to 50 per cent of his total cases of gout." Women, it appears have tophi infrequently. Hench divides the course of gout into two great stages, each consisting of two phases. Stage I is

that of acute recurrent gouty arthritis with complete remissions. (Phase 1 is that of early attacks, phase 2 that of late acute attacks with remissions.) Stage II is that of chronic gouty arthritis, (phase 3 is that of early chronic gouty arthritis with acute exacerbations but incomplete remissions. Phase 4 is the final relatively symptomless chronic gouty arthritis). Tophi are rare in phase 1, become more common in phase 2 and are invariably seen in stage II.

Podagra is, in the average physician's mind, the most characteristic feature of gout. In an analysis of 100 cases of gout, Hench found that the initial attack involved the great toe joint in only 60 per cent of cases. Other joints were affected in the remaining 40 per cent of cases. One of his patients with a total of 150 attacks experienced only 10 attacks in a great toe. The bunion joint was the first joint involved in 70 per cent of Scudamore's cases. One should not hesitate to diagnose gout in the absence of podagra.

Abnormal elevation of the blood uric acid level in phase 1 is transient, in phase 2 hyperuricemia is frequent but is not always present, in stage II it is always present. Hyperuricemia is not essential for a diagnosis of gout; however in the absence of leukemia, polycythemia, starvation, ketosis and nephritis it is significant, especially if a chronic arthritis is present. An elevation of blood uric acid values was seen in 72 per cent of Hench's cases.

Roentgenographic evidence of bony erosion in articular and juxta-articular bone in phase 1 is common, in phase 2 frequent and in stage II it is common. These signs are found as a rule only in the hands and feet and are the result of replacement of bone by urate deposits. Roentgenograms were positive in only 22 per cent of Hench's cases. This sign is a relatively late manifestation of the disease and cannot be depended on for early diagnosis. "In the absence of other data, a diagnosis of gout based on x-ray evidence of punched out areas of erosion in cases of arthritis is usually erroneous" (Hench). These changes occur in other diseases of bone as chronic

infectious arthritis, traumatic and senescent arthritis.

The classical signs of gout when present offer valuable evidence of the existence of the disease, but when absent do not exclude the condition. The characteristic clinical pattern, the features of the individual attacks while not pathognomonic are highly suggestive. Early diagnosis of gout depends on proper recognition of these classical signs and symptoms.

Lockie found that an acute attack of gout could be reproduced in the symptom free interval by a diet high in fat and low in carbohydrate and protein. Lockie and Hubbard, Lennox, Harding et al. have demonstrated that starvation and ketosis increase the amount of uric acid in the blood. Whether or not the increase in the blood uric acid is responsible for the acute exacerbations is difficult to determine.

#### SUMMARY AND CONCLUSIONS

The characteristic features of gout, tophi, hyperuricemia, podagra and erosion of articular and juxta-articular bone, may be lacking in a considerable number of cases of typical gout. The diagnosis of these cases depends on a clinical pattern, which while not pathognomonic, is very suggestive of the disease. Hench has so well discussed these features that Hollander's outline of the points emphasized by Hench is given below:

*Suspect Gout When an Acute Arthritis Suddenly Develops:*

1. After relatively trivial trauma;
2. After dietary excesses of holidays, birthdays and lodge nights;
3. After any surgical operation (acute postoperative arthritis is usually gouty);
4. After the trauma, exposure and dietary insults of a hunting or fishing trip;
5. In the spring and fall (gout has a definite seasonal incidence);
6. In the night between 2 and 7 a. m. (it may occur at any hour however);
7. In patients under certain coincidental treatments such as liver extract for pernicious anemia, salyrgan for dropsy, ergotamine tartrate for migraine, insulin for diabetes or the ketogenic diet for epilepsy or bacilluria;

8. In patients with polycythemia or leukemia;

9. In females only with extreme caution as it is rare, in this sex;

10. In men over 40 years of age. (This is the most common form of acute arthritis in this age group);

11. When an acute arthritis comes on with dramatic speed in a few minutes or hours;

12. When the pain is unusually severe, "the worst ever;"

13. When the great toe is acutely, not chronically involved (podagra however, may occur later or never in the course of the disease);

14. When the maximal tenderness is at the mesial aspect rather than underneath or on top of the bunion joint;

15. When the appearance of an involved foot is suggestive (warm, bluish-red rather than cold, bluish-white as in atrophic arthritis) with edema and later desquamation of the skin;

16. When an acute arthritis is of short duration (one to three weeks) and full restitution of function occurs;

17. When acute recurrent attacks of arthritis occur with complete remissions, possibly followed by chronic arthritis later;

18. When an olecranon bursitis is discovered or a positive history obtained (as this is several times more common in gout than in any other disease);

19. In patients with acute and chronic arthritis who have or have had chronic nephritis or renal colic (urate stones or gravel incidentally cast no roentgenographic shadow);

20. In a case presenting a number of the above features even when podagra (a common, but not inevitable feature), hyperuricemia, "characteristic roentgenographic changes," and tophi are absent. These are not early but rather late features of gout;

21. A last might be added, when an acute arthritis responds dramatically to colchicine.

#### BIBLIOGRAPHY

- Allbutt, R. C., Hopkins, F. G., and Wolf, C. G. L.: *Gout*, Oxford Medicine, New York, Oxford University Press, Vol. 4 Part I, pp. 80, 1927.
- Cohen, A.: *Gout*, Am. J. Med. Sci., 192:488, 1936.

Darnall, C. M., and Hench, P. S.: Certain factors precipitating acute exacerbations of gout, Proc. Staff Meet. Mayo Clinic, 7:331, 1932.

Harding, V. J., Allen, K. D., Eagles, B. A., and Van Wyck, H. B.: The effect of high fat diets on the uric acid in the blood, J. Biol. Chem., 63:37, 1925.

Hench, P. S., Vanzant, F. R., and Nomland, R.: Basis for the early differential diagnosis of gout. A clinical comparison of 100 cases each of gout, rheumatic fever, and infectious arthritis, Trans. Assn. Am. Phys., 43:217, 1928.

Hench, P. S.: Derivatives of cinchophen and their toxicity, Proc. Staff Meet, Mayo Clinic, 7:427, 1932.

Idem: A clinic on some diseases of joints, Med. Clin. N. A., 19:551, 1935.

Idem: The diagnosis of gout and gouty arthritis, Proc. Staff Meet. Mayo Clinic, 11:476, 1936; J. Lab. & Clin. Med., 22:48, 1936.

Idem: Comments on the diagnosis and management of gout in certain parts of the United States, Proc. Staff Meet. Mayo Clinic, 12:262, 1937.

Hench, P. S., Bauer, W., Fletcher, A. A., Ghrist, A., Hall, F., and White, P.: The present status of the problem of "rheumatism." A review of recent American and English literature on "rheumatism" and arthritis. (Second Rheumatism Review); Ann. Int. Med. 8:1315, 1935; 8:1495, 1935; 8:1673, 1935.

Idem: (The Third Rheumatism Review), Ann. Int. Med., 10:754, 1936.

Idem: (The Fourth Rheumatism Review), Ann. Int. Med., 11:1089, 1938.

Idem: (The Fifth Rheumatism Review), Ann. Int. Med., 12:1005, 1939; 12:1295, 1939.

Herrick, W. W., and Tyson, T. L.: Gout: a forgotten disease, Am. J. Med. Sci., 192:483, 1936.

Hollander, J. L.: The diagnosis and treatment of gout, Med. Clin. N. A., 23:1437, 1939.

Keefer, C. S.: The treatment of gonococcal arthritis, rheumatoid arthritis and gout, Med. Clin. N. A., 19:1367, 1936.

Lennox, W. G.: Increase of uric acid in the blood during prolonged starvation, J. A. M. A., 92:62, 1924.

Lockie, L. M., and Hubbard, R. S.: Gout: Changes in symptoms and purine metabolism produced by high fat diets in four gouty patients, J. A. M. A., 104:2072, 1935.

Lockie, L. M.: A discussion of a therapeutic test and a provocation test in gouty arthritis, Ann. Int. Med., 13:755, 1939.

Monroe, R. T.: The detection of gout, Med. Clin. N. A., 18:999, 1935.

Rutledge, D. I., and Bedard, R. E.: Criteria for the diagnosis of presumptive (pretophaceous) gout. Management of an illustrative case, Proc. Staff Meet. Mayo Clinic, 12:149, 1937.

Schnitker, M. A., and Richter, A. B.: Nephritis in gout, Am. J. Med. Sci., 192:241, 1936.

Volini, I. F., and O'Brien, G. F.: Gout, Med. Clin. N. A., 18:1355, 1935.

Volini, I. F.: Gout. A report of ten cases for the year 1935, Med. Clin. N. A., 21:3, 1937.

## HYPERPYREXIA\*

### THE INDICATIONS AND COMPLICATIONS WITH AN EVALUATION OF RESULTS BASED ON 5,500 FEVER SESSIONS

J. A. TRAUTMAN, M. D.†  
NEW ORLEANS

Hyperpyrexia, as induced by fever cabinets, has been applied to more than fifty diseases during the past ten years but the results in many of these were disappointing, whereas the benefits derived in other diseases proved to be of extreme value. Several hundred papers and articles have been written on various phases of the subject, and these many reports represent a vast amount of excellent work. I do not propose, in this paper, to cover more than a few important points concerning this

\*Read before the Orleans Parish Medical Society December 11, 1939.

†From the U. S. Marine Hospital, New Orleans, La.

\*\*Assistance has been given by the Work Projects Administration, Official Project No. 765-64-3-4, and 2,493 treatments were given by W. P. A. nurse-technicians; 3,007 treatments were given by the nurse-technicians of the U. S. Public Health Service.

form of therapy, and will give only a few of my own impressions as a result of the work done at the U. S. Marine Hospital.\*\* An effort will be made here to discuss briefly certain fundamentals which are believed to be necessary in the proper management of artificial fever therapy, as well as to mention some of the indications, contraindications, reactions, and results of treatment.

#### APPARATUS AND PERSONNEL

For the proper administration of fever treatment a suitable apparatus is required. We have used only one type of cabinet, this being one that utilizes warm moist air to induce fever. The newer cabinets now in use are all metal and have as their principal parts for production of warm moist air, a small electric heater, a humidifier and a fan to circulate the warm moist air in the cabinet. An aid to the successful management of fever therapy is that of an electrical rectal thermometer which shows the temperature of the patient at all times. The fever is induced by keeping the patient's nude body constantly bathed in warm moist circulating air. Only the patient's head and neck are exposed outside of the cabinet. This cabinet has been found to be

entirely satisfactory but many other cabinets have been reported by various workers as being satisfactory. It would appear, however, that the safest cabinets are those in which warm humidified air, near the saturation point, is constantly applied around the patient's body during the fever session.

Having selected the proper apparatus, it is imperative that the apparatus be limited to use in a hospital and never used in an office. It cannot be too strongly emphasized that fever sessions should always be conducted in a hospital where all possible complications of treatment can be treated more easily. In addition, the severity of the condition for which the patient is being treated may require hospitalization in itself. For the higher fever levels of treatment it is believed that the patient should in all cases be hospitalized until at least the next morning after completion of the treatment.

The next, and most important consideration, is the selection and training of personnel. A trained physician should be in charge of all fever sessions and should be constantly in attendance or nearby so that he can easily be summoned. He should know treatment procedures and reactions well, and should have sufficient experience to be able to select patients who can tolerate treatment as well as to prescribe the fever levels and duration of the fever sessions. Nurse-technicians should receive training for not less than one month before attempting to give a fever treatment, care being taken that the proper types of individuals are selected. In addition to more than average intelligence and pleasing personality, the nurse-technician should be one who is alert and at the same time calm. Many fever sessions have been terminated at the request of the patient because of lack of confidence in the nurse-technician. It might be stated also that the physician in charge of fever therapy can aid the nurse-technician greatly by an explanation of some of the phases of the treatment to the patient.

With the improvement in the apparatus and technic, together with a greater knowledge of selecting patients, and of reactions

during and after treatments, there has evolved comparative safety in the administration of fever therapy. One example of the changes made is that of the humidified air in which the patient lies in the cabinet. In 1934, when an air-conditioned cabinet was first used, the temperature level in the cabinet ranged from 140 to 155° F. and the relative humidity was less than 55 per cent. The cabinet temperature was gradually decreased and the relative humidity increased, as experience by other workers showed that such an atmosphere was more desirable. At the present time the desired temperature level of 105 to 107° F. in the patient is maintained by a cabinet temperature of 105 to 112° F. and during the induction phase of the treatment the cabinet temperature ranges from 112 to 116° F. Under the former conditions of higher cabinet temperatures and lower humidity, 2.3 per cent of the treatments were discontinued because of cardiovascular reactions and 1 per cent because of delirium and convulsions. At the present time under the newer procedures such complications are rare. Some of the complications observed during fever therapy were nausea and vomiting, delirium and restlessness of varying degrees, tetany, burns, headaches, abdominal pain and distention, muscle cramps, heat stroke, circulatory collapse and herpes of lips, mouth and nose. Most of the reactions generally did not warrant cessation of treatment but at times the treatments were quite uncomfortable. Death may follow some of the more severe types of reactions.

#### COMPLICATIONS

With new advances made in fever therapy, the complications have been greatly minimized, and even the minor reactions are rare. Much less intravenous saline is required because of rarity of persistent nausea and vomiting. Burns rarely occur. There is less restlessness, and delirium is rarely seen. Circulatory collapse and heat stroke are extremely rare because with a more comfortable treatment the patient is able to ingest salt solution at a regular rate and the fluid seems to be absorbed more easily in the gastrointestinal tract. Previ-

ously there was not infrequently abdominal distention and pain due to the failure of fluid to be absorbed. This resulted in nausea and vomiting with a loss of the chloride supply to the body, and consequently brought the patient to the border of disaster before this was realized. In such cases intravenous chlorides with 5 per cent glucose were very beneficial in preventing the disastrous effects of chloride loss during high fevers. In a series of 5,500 fever sessions given to 985 patients there was one death due to hyperpyrexia. This death occurred in the early part of 1936, at a time when the higher cabinet temperatures and lower humidity levels were of eight to ten hours' duration at 104 the fever threatment had been completed. At this time the temperature elevated rapidly, and rose much above 107° F. with fatal results in a short time. Of the 5,500 fever treatments given, 555 fever sessions were of eight to ten hours' duration of 104 to 107° F., the greater number, however, were 105.5 to 107° F. for ten hours; 4,945 treatments were of three to eight hours' duration, the vast majority being at levels of 105 to 107° F. for five hours.

#### DISEASES TREATED

As stated at the outset, numerous diseases have been treated with hyperpyrexia, and as a result of the past few years' observations, some definite conclusions have been formed as to its value. In only a few diseases has this form of therapy proved of value. In others, sufficient time has not passed to determine the benefits, whereas in some diseases it is definitely known that fever therapy is of no benefit, and even may be harmful.

#### GONOCOCCAL INFECTIONS

We have treated about 30 different diseases by fever therapy, the largest group treated being gonococcal infections and their complications. We have treated a total of 567 patients with gonorrhea by fever therapy, these being divided into three main groups according to the type of treatment:

Group 1: Patients had five hour sessions of fever at 106-107° F. Average number

of fever sessions 6.5; 352 treated (112—duration of gonorrhea one month; 166—duration one to six months; 74—duration over six months); 304 adequate observation and treatment; 252, or 82.5 per cent recovered.

Group 2: Those who received sulfanilamide, and failing to respond to this, were given fever at 106-107° F. for five hours. Average number of fever sessions 6.6; 42 treated (11—duration of gonorrhea one month; 23—duration one to six months; 8—duration over six months); 36 adequate observation and treatment; 26, or 72.2 per cent recovered.

Group 3: Those who received sulfanilamide or sulfapyridine and failing to respond were given 10 hour sessions of fever at 105-107° F. alone, or additional sulfanilamide or sulfapyridine with fever therapy. An average of 2.6 fever sessions were given per patient. In some instances where resistant arthritis was a complication, additional sessions of five hours' duration were given; 173 treated (98—duration of gonorrhea one month; 56—duration one to six months; 19—duration over six months); 165 adequate treatment and observation; 156, or 94.5 per cent recovered.

In a follow-up study in progress now 275 of the 567 patients have been rechecked as to recurrence of gonorrhea. Two hundred and forty-one of these patients completed their treatment from one to five and a half years ago and 34 from three months to one year ago. Of the entire group of 275, nine or 3.2 per cent of the patients had a recurrence. An additional group of 11 cases, or 3.9 per cent, had what was considered to be a new infection. This latter group had had repeated sexual exposure and had used alcohol repeatedly over periods of several months to five years. Then three to five days after sexual exposure to prostitutes, a typical acute gonorrheal urethritis appeared.

Very encouraging results were obtained in a group of 129 patients having gonorrheal arthritis. The results were as follows:

60 cases with duration of one month or less:



- 56 received adequate fever therapy and observation;
- 53 markedly improved to recovered;  
2 moderately improved;  
1 slightly improved.
- 45 cases with duration of one to six months:
  - 42 received adequate fever therapy and observation;
  - 35 markedly improved to recovered;  
1 moderately improved;  
6 slightly improved or not improved.
- 24 cases with duration of over six months:
  - 19 received adequate fever therapy and observation;
  - 14 markedly improved to recovered;  
3 moderately improved;  
2 slight or no improvement.

A follow-up of 52 patients who had attained marked improvement to recovery and who were followed for one to five and a half years showed that all except two had maintained this degree of improvement.

Another group of gonococcal complications were those having epididymitis, there being 160 such cases. All except five were promptly relieved by fever therapy. Ninety-eight cases of acute gonorrheal prostatitis showed excellent results due to fever therapy. Excellent results likewise were obtained in other gonococcal complications such as seminal vesiculitis, balanoposthitis, severe inguinal adenitis, peri-urethral abscess and pelvic inflammatory disease (only two cases of the latter complication).

#### SULFANILAMIDE AND FEVER THERAPY

When sulfanilamide first appeared it was believed that there would be very little use for fever therapy but while there were not as many cases as previously, there were still some 25 to 30 per cent of the patients who did not respond to sulfanilamide. For the most part sulfanilamide was given routinely to all patients with gonorrhea. Those who failed to recover were usually given fever therapy if they were good risks. Some have received sulfanilamide between fever sessions. Although we have been able to give fever as desired to most patients, there was a tendency for them to complain a little more about weakness and

restlessness, together with nausea and vomiting, when sulfanilamide was given a few days before or between fever sessions.

Kendall, Rose and Simpson<sup>1</sup> have given sulfanilamide intravenously one hour prior to a fever session of ten hours. Their usual procedure in resistant cases of gonorrhea is to admit the patient to the hospital; and after a careful survey to determine his fitness for fever therapy, a test fever session is given at 105° F. for one to three hours. He then rests for one day and on the next morning receives an intravenous injection of a 1 per cent solution of sulfanilamide in physiologic saline one hour before the fever session begins. A fever session of ten hours at 106.6° F. is then given. The amount of sulfanilamide given is calculated on a basis of  $\frac{3}{4}$  grain per pound of body weight.

The use of sulfapyridine may lessen the need of fever therapy but here, too, there are patients who have not responded to this drug. We have treated several patients with gonorrhea with the drug, but have not followed our cases long enough to form an opinion. Results, however, appear to be encouraging.

#### SYPHILIS

The next largest group of cases treated were patients with syphilis, there being 187 in this group. Since any form of therapy in syphilis cannot be evaluated in five and a half years, which is the longest any patient was observed, it is impossible to determine at this time just what the final results of fever therapy will be. Briefly, however, it can be said that fever therapy when combined with chemotherapy appears to be of value in the treatment of paresis, tabes dorsalis, asymptomatic neurosyphilis, acute syphilitic eye conditions, as iritis and the like, in cases of syphilis where the patient cannot tolerate arsenicals, and in seroresistant syphilis. Several workers have shown that fever therapy is a valuable therapeutic aid in the treatment of syphilis. Since 1935 Ebaugh, Ewalt and Barnacle<sup>2</sup> have been assigning alternate cases of neurosyphilis to malaria therapy and artificial fever. Some of their observations as a result of this excellent work are as fol-

lows: Clinical improvement of some degree was noted in 10 per cent more cases of the artificial fever group than in the malarial group. Physically induced fever caused more rapid response to tabetic pains and gastric crises, and with greater certainty. Patients of advanced age, or of generally poor condition may be treated with greater safety in the hypertherm. The results of treatment are definitely correlated with the amount of fever therapy given. Uncooperative patients are more easily treated with malaria, but, if powerful sedatives are used, physically induced fever may be given. Physically induced fever is more costly to administer, but they feel that this expense is justified by the better results obtained. They likewise believe that the advantages of physically induced fever seem to outweigh those of therapeutic malaria, but certain workers believe that the relapse rate will be less in the malaria series than in the physically induced fever series. Time will have to decide this issue. Bennett, Nielsen, Fechner, and Cash<sup>3</sup> state that the percentage of remissions in parietic dementia is 20 per cent greater after a full course of combined artificial fever and chemotherapy, than when malaria is used followed by chemotherapy. Krusen and Elkins<sup>4</sup> observed that the use of artificial fever in the treatment of dementia paralytica is becoming more extensive, but still feel that it is more efficient than malaria fever. They likewise emphasize that although the immediate clinical remissions seem higher than for therapeutic malaria, time will have to decide which offers the higher incidence of relapse. Simpson<sup>5</sup> stated that results in treatment of neurosyphilis and resistant seropositive syphilis with artificial fever therapy are comparable to therapeutic malaria.

#### MISCELLANEOUS CONDITIONS

We have treated seven men with venereal lymphogranuloma with fever therapy and very satisfactory results were observed. Fever therapy was used successfully in only four patients when it was discovered that sulfanilamide was an effective therapeutic agent in this disease. Now, fever therapy is reserved for those patients who

react unfavorably to sulfanilamide, or who might not respond to sulfanilamide. Since early in 1938, 46 patients have been treated with sulfanilamide and fever therapy and all have responded promptly. These men were in the acute phase of the disease, having an average duration of 34 days before treatment was begun, and an average duration of 18.7 days after treatment was begun. In a similar group of 45 patients who had excision of glands the period of disability after surgery was 43.2 days.

Fifty-three patients with various eye conditions such as acute iritis, acute exudative choroiditis, interstitial keratitis, optic atrophy, gonorrhoeal ophthalmia, corneal ulcers which have resisted usual forms of treatment, and sympathetic ophthalmia, were treated. Very encouraging results have been observed in all of these conditions to date with the exception of optic atrophy due to syphilis. In this group, which is really too small to discuss, there has been noted only slight, to no improvement, and in one case the condition has progressed. Further observation of more cases is necessary before any definite statement can be made. Other workers have reported encouraging results, however, in optic atrophy.

In the arthritic group, 62 patients were treated who had acute infectious arthritis, chronic hypertrophic arthritis and chronic infectious arthritis. The results in the acute group have been encouraging, and in the chronic groups, good results were obtained in about one-third of the cases. In the remainder, only temporary, or no relief, was obtained. No ill-effects from fever therapy have been noted in this group, but ill-effects may result if fever of too high a level, or too long a period is given.

A few patients were treated who had neuritis, arthralgia, myositis, torticollis, acute non-specific epididymitis, and one with neuromyelitis optica, with apparent good results, but none of these groups are large enough to evaluate properly. Granuloma inguinale, thrombo-angiitis obliterans, erythromelalgia, Raynaud's disease, multiple sclerosis, hereditary ataxia, paralysis agitans, chronic encephalitis, asthma and

tuberculosis of the kidneys, have not been benefited by fever therapy in our experience. Eighteen persons with leprosy were treated with fever therapy and no beneficial results were obtained.

Good results have been obtained by other workers in diseases such as acute rheumatic fever, undulant fever, meningococcic septicemia, bronchial asthma, and Sydenham's chorea, but it is questionable whether enough work has been done to evaluate properly this form of therapy in these diseases. We have not treated any of these conditions, and have no opinion as to the value of fever therapy in this latter group.

Reviewing briefly, it can be stated that artificial fever therapy appears to have a place in the treatment of gonorrhea, syphilis, and acute exudative eye conditions. There is sufficient information to warrant its further trial in chorea, venereal lymphogranuloma, acute rheumatic fever, acute infectious arthritis, and, possibly, certain of the chronic arthritis cases, undulant fever, meningococcic septicemia, intrinsic intractable asthma, neuritis, arthralgia and myositis. It is doubtful that any value except possibly temporary relief in some instances may be derived in giving fever therapy in conditions such as tuberculosis, leprosy, granuloma inguinale, thromboangiitis obliterans, Raynaud's disease, erythromelalgia, multiple sclerosis, hereditary ataxia, paralysis agitans, chronic encephalitis, Hodgkin's disease, most chronic skin diseases and many other diseases.

#### CONTRAINDICATIONS TO HYPERPYREXIA

I believe that I should not close without touching briefly on the contraindications to fever therapy. Although usually not specifically mentioned as a contraindication, I would list an extrinsic factor as one of great importance; namely, that of referring a patient to an individual or clinic where fever therapy is not properly conducted. It must be emphasized over and over again that these departments should be in recognized hospitals, and operated by trained personnel who are capable of selecting properly the patients able to tolerate the treatment, assigning proper fever levels and preventing accidents and deaths by

careful observation and attention to details before, during, and after the fever session. Secondly, fever therapy should not be given to those who have severe debility, cardiac disease, hypertension, chronic nephritis, pulmonary tuberculosis, and the like. The contraindications have been compared to those of a major surgical operation. It is difficult to consider all possible contraindications but, in general, one must study each individual case to determine the possible risk involved, and whether or not there is any condition present which will be aggravated by fever therapy, or result in death of the patient. This is a matter that can be decided only by experience and training, and that is why so much stress is placed upon the proper training of the personnel.

#### CONCLUSIONS

1. The air-conditioned cabinet has proved an effective means of inducing hyperpyrexia for therapeutic purposes at fever levels up to 107° F.

2. Fever therapy should always be administered in hospitals, and by properly trained personnel.

3. Improvements in fever cabinets and technic of treatment have greatly increased the comfort of the patient and lessened complications of treatment. One death occurred at the U. S. Marine Hospital, New Orleans, following fever therapy. The mortality rate was extremely low, since only one death occurred in 5,500 treatments given to 985 patients. No death has occurred in our series as a result of fever therapy for nearly four years.

4. Fever therapy appears to be a valuable adjunct to therapy in gonorrhea, syphilis, and acute exudative eye conditions. Sufficient good results have been reported to warrant its further study in venereal lymphogranuloma, neuritis, arthralgia, myositis, acute and chronic infectious arthritis, acute rheumatic fever, chorea, undulant fever, meningococcic septicemia and asthma.

5. Some of the contraindications to fever therapy and some of the diseases in which hyperpyrexia has been used are briefly discussed.

## REFERENCES

1. Kendall, H. Worley; Rose, Donald L., and Simpson, Walter M.: Fever therapy technique in syphilis and gonococcal infections, *Arch. Physical Therapy*, 20: 614, 1939.
2. Ebaugh, F. G., Ewalt, J. K., and Barnaele, C. H.: Artificial fever therapy. Report, Fever Conference, Nov. 11-12, 1938.
3. Bennett, A. E., Nielsen, J. C., Fechner, A. H., and Cash, P. T.: Combined artificial fever and chemotherapy in dementia paralytica, *Arch. Physical Therapy*, 20:620, 1939.
4. Krusen, Frank H., and Elkins, Earl C.: Fever therapy by physical means, *J. A. M. A.*, 112:1689, 1939.
5. Simpson, Walter M.: Artificial fever therapy of syphilis, *J. A. M. A.*, 105:2132, 1935.

## DISCUSSION

Dr. W. L. Smith (New Orleans): Dr. Trautman leaves very little to discuss in this paper and since I got all I know of the subject from him, I feel that he has covered the discussion very well.

I do not know a great deal about this subject. I have never given or taken a treatment. I have, however, during the last four years observed Dr. Trautman's methods, results and treatment and all I can do is to emphasize some of the points brought out by him.

Among the important points is the necessity for proper equipment and proper set-up, before attempting to do fever therapy. You remember when fever therapy was first introduced all sorts of instruments were devised for giving treatment. The day of the modified baking oven or "homemade barbecue pit" for giving fever therapy has passed. There are several types now which are suitable and all must protect the patient every minute.

Dr. Trautman mentioned personnel and particularly nurses. I want to emphasize that point: This sort of nursing is a very particular kind. These nurses are in constant attendance as long as the patient is in the apparatus. They are not allowed to leave the patient but are in constant and watchful attendance. Under Dr. Trautman's service in addition to the nurse there is also a doctor in attendance at all times. He is not allowed to leave that service and he must be a doctor who understands the dangers and complications which may arise as a result of fever therapy.

As to the patients, I want to emphasize the importance of proper selection of patients. It has been my experience that some patients are referred for treatment with such conditions that if fever treatment were given, it would prove fatal. Many patients have been refused treatment who were referred to the Fever Therapy Department because it was believed that they were unable to tolerate this form of therapy. Another thing is the pressure that patients bring to bear upon the doctor to give them the treatment. Any number of people come to the hospital because they know fever therapy is given there. These patients sometimes have incurable conditions but they have been led to believe that this treatment might do good and insist upon it. Unless there is some logical reason to feel that the treatment will do good, we are not

persuaded by the patient's desire for the treatment.

With proper equipment and proper selection of cases, following the meticulous routine Dr. Trautman has mapped out, the results in certain types of disease are very satisfactory. It is amazing in some cases the results that are obtained from this form of treatment particularly, as mentioned, in syphilis, gonorrhea and eye conditions. I believe that this form of therapy is a useful measure if properly administered with proper equipment.

Dr. Simpson has said that this therapy has passed the honeymoon stage and has reached the stage of usefulness. It is not an ideal form of treatment but I think it is the best for some conditions. I feel that it will be found very useful and will have to use it until the happy time comes when we will be able to practice medicine with nothing more than a lard can of vitamins on one side and a washtub full of sulfanilamide on the other.

Dr. N. H. Polmer (New Orleans): Several hundred investigators have contributed more than 600 articles on the use of artificially induced fever in conditions and diseases ranging from adiposis dolorosa to undulant fever. Prominent among these have been the reports which have emanated from Dr. Trautman and his associates at the U. S. Marine Hospital.

With the continued use of fever therapy there has evolved, regardless of the make of apparatus used, a fairly standardized procedure. In fever produced by physical means, be it hot air, hot water, hot packs, diathermy, short wave diathermy, electromagnetic induction or thermostatically conditioned humid cabinets, the patient is placed in the current of the heating waves or in a controlled heated environment. There are several safe and efficient methods of producing this fever. Dr. Trautman's experience has been with the air-conditioned cabinet, mine has been with other electrotherapeutic methods. At present there seems to be little choice between the various cabinets, for a recent report from The Mayo clinic stated that 50 per cent of the patients favor electromagnetic induction, and the others favored cabinet with different arrangements. Of much greater importance than the apparatus used is the skill, experience and clinical vigilance of the physician, his nurse-technician and assistants in the application of the fever treatment.

I heartily agree with the statement that "Fever therapy should always be administered in hospitals, and by properly trained personnel."

Physically induced fever has the advantage over other forms of fever therapy in that no new disease is given the patient, no foreign protein shock is produced. The physician is enabled to control and regulate the onset, degree, duration, and decline of the fever.

Although fever therapy has been used in some fifty diseases, results which warrant further use

have been obtained in about only ten diseases. These have been enumerated by the essayist. Pre-eminent have been the successful results in gonorrhoea and its complications, and in syphilis of the central nervous system. Dr. Trautman and his associates have treated and reported one of the largest series of cases with neisserian infection and its complications. Any complete discussion of fever therapy in gonorrhoea must mention their work.

Combination of fever and chemotherapy in at least two diseases, gonorrhoea and syphilis, has been found to be more efficacious than either treatment alone. These results may point the way to the combined use of physical therapy and medicinal therapy in other conditions.

In pointing out the advantages of fever therapy the essayist has judiciously called attention to its complications and contraindications. The most common untoward effects encountered are headache, restlessness, nausea, vomiting and muscular cramps. Herpetic lesions on the lips, and superficial burns on the body may occasionally occur. The serious complications however are circulatory collapse and heat stroke. By proper selection of patients, careful pre-treatment preparation, and clinical vigilance during fever treatment, most of these dangers can be eliminated and the difficulties overcome. The excellent therapeutic results obtained by Dr. Trautman and his co-workers in administering 5,500 fever sessions with but one fatality bespeak their familiarity with and careful attention to the finer points of technic. They are to be congratulated.

—o—

## RECENT ADVANCES IN THE STUDY OF PULMONARY DISEASES

JULIUS LANE WILSON, M. D.†  
NEW ORLEANS

As the author of "The Education of Henry Adams" grew old, he was frightened by the acceleration of scientific investigation, industrialism, and mechanization which was taking place. Reduced to a mathematical formula, it seemed to him to be a fevered nightmare with no solution except awakening. Leaving such dreams and forebodings to the philosopher, our concern with this accelerated tempo is to keep up with the rapid flood of medical knowledge which it entails. Hence comes the need for frequent reviews of our advances in vari-

ous fields. When Burton said, "No news here; that which I have is stolen from others," he referred to the classic authorities, quoted by him in his "Anatomy of Melancholy" in such profusion, whereas in the study of pulmonary diseases we need only to pick the brains of our immediate contemporaries to collect a wealth of presently applicable facts and methods.

Standing on the shoulders of the great pathologists and bacteriologists, and armed with instruments to penetrate the hidden secrets of the human body, physiologists, clinicians, and thoracic surgeons are adding daily to our knowledge of pulmonary diseases. The process of their subdivision into etiologic entities is almost complete. Understanding of the mechanisms of disease processes is rapidly increasing. And happily the development of thoracic surgery since the World War of 1914-18 and the recent revived faith in chemotherapy have ended an era of therapeutic nihilism to bring important new weapons to the hand of physician and surgeon in fighting pulmonary disease.

By the application of new methods and new instruments the anatomy, physiology, and pathology of the lungs have been restudied to great advantage. Bacteriology and immunology have attained a refinement of technic throwing new light on certain pulmonary diseases. The purpose of this paper is to call attention to some of these steps in the medical sciences and to illustrate their application in the diagnosis and treatment of certain pulmonary diseases.

### ANATOMY

When the lungs were forbidden territory to the surgeon and when the most that the physician wished to know was—"which lung, or what lobe is involved?"—the student justifiably took little interest in pulmonary anatomy. Now, a detailed knowledge of their anatomy becomes increasingly important to internist, surgeon, and bronchoscopist.

The anatomy of the bronchial tree has been explored by bronchography and by the bronchoscope. By the study of chest roentgenograms in various planes after the instillation of radio-opaque oil, benign and

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana, New Orleans.

malignant tumors of the bronchi can be discovered and localized. This method is of particular value in parts of the bronchial tree inaccessible to bronchoscopic inspection, such as the bronchi of the upper lobes. The greatest aid to early diagnosis of bronchiogenic carcinoma has been the more frequent resort to bronchoscopy as this method of exploration has become everywhere available. With the removal, through the bronchoscope, of a biopsy specimen a diagnosis of malignancy can be made early enough to make pneumonectomy feasible. An exact knowledge of the various bronchial branches and the corresponding areas of pulmonary parenchyma is also necessary in the removal of foreign bodies, in the drainage of abscesses, and in the performance of lobectomies for bronchiectasis of cystic disease.

The anatomy of the pulmonary vessels is equally important to the thoracic surgeon. As mass ligation of the lung root in pneumonectomy is replaced by a careful dissection and ligation of the vessels and bronchus, the exact situation of these vessels has been studied as well as their commoner anomalies. For example, with bronchiectasis of the left lower lobe it is found by bronchography that a bronchiectasis of the lingula of the left upper lobe occurs in about 80 per cent of the cases. A lobectomy of the lower lobe would, therefore, yield an unsatisfactory result. Injection studies by Churchill<sup>1</sup> have shown that this portion of the upper lobe has a distinct bronchus and blood supply. Therefore, when necessary, it is now possible to amputate the lingula of the left upper lobe without difficulty at the same lobectomy operation.

The anatomy of the structures comprising the chest wall has also become of great interest to surgeons. A most striking illustration of this study has been the rapid introduction of the principles of apicolysis for tuberculous cavities in the lung apices as laid down by Semb.<sup>2</sup> He pointed out the bands of tissue which hold the parietal pleura above and medially at the apex; and he developed a technic for their severance. This has had a marked effect upon the surgical collapse therapy of pulmonary

tuberculosis. Previously a patient in whom pneumothorax failed to collapse an apical cavity could not be treated successfully except by total paravertebral thoracoplasty, which was often contraindicated by the patient's general condition or by disease in the contralateral lung. Attempts at partial thoracoplasty had almost invariably been followed by revision operations which in turn failed to close the cavity. With the introduction of the Semb apicolysis it became possible to drop the lung apex down out of the costovertebral gutter and to limit the rib resection to the area of lung involved. The most recent step in this process of greater conservatism in the treatment of apical cavities has been the introduction of the procedure called, rather disarmingly, extrapleural pneumothorax.<sup>3</sup> An apicolysis is done through a resection of the third rib posteriorly, and a dead space is left between parietal pleura and ribs. This is maintained by air under positive pressure introduced through a needle. As this procedure has been in use for only three years, the ultimate fate of these dead spaces is not known. There are no reports of successful re-expansions of the lung. In many instances the air has been replaced with oil, creating a situation similar to the older "plombage." In others, as the patient's condition warranted, a partial thoracoplasty has been performed. The only advantage which such an operation can have over an apicolysis with partial thoracoplasty at the start is that it is less shocking and, therefore, can be performed on patients in poorer general condition. Which ever method is used, it has now become possible to solve the therapeutic problem presented by the patient with bilateral apical cavitation in a tuberculosis otherwise not extensive or necessarily fatal.

#### PHYSIOLOGY

In the field of normal and pathologic physiology many of the greatest advances have been made. The mechanism of external respiration in all its adaptability has come to be better understood. Forty years ago textbooks of physiology stated that complete paralysis of the diaphragm was fatal, yet we have seen both halves of the

diaphragm deliberately paralyzed to treat pulmonary tuberculosis. Similarly, we have learned how far we can go with bilateral pneumothorax. We have paralyzed the intercostals and the scaleni. We have combined various procedures, seeing patients recover from advanced tuberculosis after pneumothorax on one side and thoracoplasty on the opposite side, or almost any possible combination short of a total paravertebral thoracoplasty on both sides. Such boldness has been justified by a knowledge of the safe limits of the pulmonary reserve and better methods of studying this in each case. It has been tempered with caution because a satisfactory test of the respiratory-circulatory reserve has not yet come into use. With the use of such anesthetics as cyclopropane, which permits a high percentage of oxygen inhalation during operation, with tracheal administration of the anesthetic, and with improved methods of oxygen administration postoperatively, it is possible to operate successfully on many patients with greatly reduced vital capacity; but we would like some method of determining the functional ability of the lungs more accurately.

A number of recent studies show progress in this direction. The late Jacobaeus<sup>4</sup> devised a bronchoscope with an extra tube and inflatable cuff for differential spirometry of the two lungs. This makes possible a determination of the tidal air and vital capacity of each lung separately, which is at times extremely important information for the surgeon before attempting thoracoplasty or other operation on one side when the other is also diseased. Courmand and Richards<sup>5</sup> and Lindskog<sup>6</sup> have demonstrated that a study of the lung volume, including both vital capacity and the residual air, gives a truer picture of the patient's reserve before and after major thoracic operations than does the vital capacity alone. With the same recording apparatus the breathing capacity, i. e., the maximum ventilation per minute, can be measured, testing the actual efficiency of the pulmonary bellows. Respiratory function can be measured also by testing the effects of breathing air containing 16 per

cent oxygen, as shown by Whitehead and Miller.<sup>7</sup> This determines the actual exchange of gases, and hence the pulmonary surface available for such an exchange, by comparative analysis of the alveolar air and arterial blood. In selecting patients for thoracoplasty in pulmonary tuberculosis, or for pneumonectomy in carcinoma of the lung, we can avoid disastrous anoxemia by eliminating those with an oxygen saturation of the arterial blood less than 85 per cent of that in the alveolar air by this test, or those with lung volume reduced below two liters.

The pulmonary circulation may be studied by the technic introduced in this country by Steinberg.<sup>8</sup> Roentgenograms of the chest taken at three, and six to nine seconds after the injection of concentrated diodrast solution into the cubital vein show exquisitely the pulmonary arterial and venous tree. This has been studied both in the normal subject and in persons with tuberculosis under various forms of collapse therapy. The method shows clearly the effect of disease and of collapse upon the circulation through the lungs. It will undoubtedly enable us to study better the effectiveness of these measures of treatment. It has already shown that there is an active congestion of the lung contralateral to tuberculosis and therapeutic collapse, confirming the deductions of Christie<sup>9</sup> from intrapleural pressure determinations. The application of this method of study will throw more light on other infections, congestions, and edema of the lung, although it is not a test suitable for routine study of patients.

The therapeutic use of various gases by inhalation has progressed rapidly. By the use of a special mask provided with a valve and rebreathing bag, Boothby<sup>10</sup> has made easy the use of oxygen concentrations up to 100 per cent. Fine<sup>11</sup> has pointed out the utility of such concentrations in speeding the removal of nitrogen and other inert gases from the blood and closed cavities in the body. In the treatment of pneumonia and other emergencies calling for oxygen administration it is probable that some such apparatus will largely replace the cumber-

some and expensive tent. The use of various concentrations of carbon dioxide, as first advocated by Yandell Henderson, has become general in resuscitation, as a post-operative procedure to hyperventilate the lungs and prevent shock, and in the treatment of postoperative atelectasis, or massive collapse of the lung. Barach<sup>12</sup> has demonstrated that helium and oxygen mixtures are more easily breathed than nitrogen and oxygen by the asthmatic. The experimental use of helium to replace nitrogen in diving was dramatically transferred directly from the laboratory of the Naval Medical Corps to the bottom of the Atlantic Ocean to make possible the salvage of the submarine *Squalus*, as recounted by Behnke.<sup>13</sup>

#### PATHOLOGY

The study of the pathology of pulmonary diseases has given us a dynamic conception of these processes to replace the static concepts obtained in the dead-house. By the study of surgical pathologic specimens, by experimental pathology, and by the deductions from roentgenograms, we are learning much more about the earlier evolution of lung disease. Descriptive pathology continues to make its contributions. For example, neoplasms of the lungs have been more intensively studied as they appear in increasing numbers under the microscope of the pathologist. Benign adenomata of the bronchi are recognized in biopsy specimens. It is now generally agreed that all primary carcinomata of the lungs are essentially bronchiogenic in origin. This unicellular histogenic concept was promulgated by Fried<sup>14</sup>, namely, that the squamous cell type, the adenocarcinomatous type, and the undifferentiated cell or "oat-cell" type all spring from the undifferentiated basal cell. Halpert<sup>15</sup> has coined the term, "reserve cell," to distinguish this basal cell and the resulting type of carcinoma of the bronchus. It has been found that the three types occur in the proportion of 20 per cent adenocarcinoma, 50 per cent squamous cell type, and 30 per cent "reserve cell" type<sup>15,16</sup>. The "superior sulcus tumor" of Pancoast has been found to be a pulmonary carcino-

ma of bronchiogenic origin, arising in the terminal bronchioles of the lung apex<sup>17,18</sup>.

It would be pertinent at this point to mention some of the newer methods of confirming the diagnosis of pulmonary carcinoma. Naturally, whenever possible, bronchoscopic inspection of the growth and biopsy for microscopic study remain the best methods. In cases accompanied by pleural effusion it is possible to replace the fluid by air and then to obtain a biopsy specimen from the pleura by using the thoracoscope, as reported by Soper and Oughterson<sup>19</sup>. After careful roentgenologic localization of the tumor, a satisfactory biopsy specimen was obtained by Craver and Binkley<sup>20</sup> with a needle in many cases where bronchoscopy had failed. The aspirated material is smeared on slides for examination. New methods for examining sputum for malignant cells have been demonstrated to be of value by Gloyne<sup>21</sup> and others. Cells obtained by aspiration of effusions can be examined by the method of Schlesinger<sup>22</sup>. With the definite arrival of pneumonectomy as an operation offering a good chance of life to the increasing number of patients with pulmonary carcinoma, all of these methods must be used to obtain earlier positive diagnoses, making operation possible.

Experimental pathology has thrown new light on an old disease, pneumoconiosis. The brilliant series of experiments carried on by Gardner<sup>23</sup> in the production of silicosis and asbestosis has shown the specificity of silicon dioxide ( $\text{SiO}_2$ ) in the etiology of the former. Silica is a chemical poison with unique effect upon the tissues. The smaller the particles, the greater the effect. Certain other minerals, such as metallic aluminum,<sup>24</sup> carbon, hematite, and gypsum, have been shown to have an inhibitory action upon the production of silicosis in animals and in man. Asbestos, a hydrated magnesium silicate, produces a pulmonary fibrosis differing pathologically from silicosis. Unlike silicosis, asbestosis does not predispose to pulmonary tuberculosis. Also unlike silicosis, asbestosis is not readily produced in the experimental animal by finely ground dust. Gardner<sup>25</sup> concludes that "the moder-



ately long but stiff fibers of the unique mineral, asbestos, were mechanically irritating to the lungs as they moved in respiration." All of this exact knowledge recently obtained concerning the factors involved in the production of silicosis and asbestosis is being applied on a large scale to prevent these conditions in industry.

The pathologic basis and results of cystic disease of the lung have been newly studied by a number of workers. On the one hand this condition has been described as a forerunner of bronchiectasis, particularly of the dry, hemorrhagic type, by Sante<sup>26</sup>. The etiology of bronchiectasis remains obscure since it is an anatomic end result rather than a distinct disease of single causation. However, it seems clear that sometimes a congenital basis in the form of cysts exists. In other instances mechanical factors, such as bronchial obstruction, are responsible, as shown experimentally by Weinberg<sup>27</sup>, and in all, infection eventually plays a part.

Congenital lung cysts have also been shown by Kjaergaard<sup>28</sup> to form the pathologic basis for the benign type of pneumothorax in certain cases. By studies of series of healthy young individuals with spontaneous pneumothorax the stigma of tuberculosis has been lifted from this group of cases. For example, Perry<sup>29</sup> reports that out of 114 cases of spontaneous pneumothorax, 85 occurred in previously healthy individuals, and none of these developed evidence of tuberculosis. Occasionally subpleural cysts or blebs can be demonstrated in good roentgenograms. In the rare cases dying of hemopneumothorax or of bilateral pneumothorax, the rupture of such a bleb or cyst has been demonstrated. More recently, following the description by Hamman<sup>30</sup> of a peculiar auscultatory crunch heard over the precordium in certain cases of pneumothorax, a number of papers have appeared confirming this finding. The pathologic basis in these instances appears to be an interstitial emphysema of the lungs with migration of some air out under the visceral pleura leading to its rupture<sup>31</sup>. It is possible that the original locus of the failure in continuity of the pulmonary air passages is

here also a congenital bleb in the lung, although necropsy evidence for this is still lacking. Due to the favorable course of this condition pathologic proof is rarely, if ever, obtainable. This group of diseases,—cystic disease, bronchiectasis, and pneumothorax,—is coming to be much better understood and more accurately diagnosed, largely as a result of better roentgenograms more frequently taken.

Under the general heading of pathology, I should like to include advances in roentgenology, since this tool is in effect a technic for the study of pathology in life. There has been such a great improvement in both technic and in apparatus that few lesions of more than microscopic size cannot be detected and studied in the lungs, which are furnished by their air content with an ideal base for contrasting densities. For chest roentgenograms in the standard postero-anterior position, the technical improvement, now regularly obtained by the use of tubes with a small focal spot at four to seven feet from the film and a sufficient output to give a very short exposure, is marked. One has only to compare the average routine chest film of today with that of ten or even five years ago to appreciate this change. The more frequent use of lateral and oblique projections of the chest has also been shown to be of great value in many conditions. For example, Myers and Blades<sup>32</sup> have demonstrated that lateral roentgenograms of the chest often show a so-called "central" lung abscess to lie in the apex of the lower lobe. This point is equally applicable to tuberculous cavities at or slightly above the level of the hilum. King<sup>33</sup> has used lateral films to clear up the nature of lesions in the right middle lobe; and Rigler<sup>34</sup> shows their necessity in dealing with encapsulated interlobar effusions. New interest in mediastinal infections and abscesses, as shown in the recent literature<sup>35</sup>, also has called for lateral and oblique films.

#### PHYSICAL STUDIES

Body section roentgenology, under its various names of tomography, lamina-graphy, stratigraphy, has been found to be a particular value in the detection and

localization of pulmonary cavities overlaid by dense lesions or obscured by the changes resulting from thoracoplasty. As the closure of cavities has become the immediate objective of thoracic surgery for pulmonary tuberculosis, their detection and delimitation has become the crucial point in deciding upon the method of treatment to be adopted in each case. While there are relatively few cases in which good roentgenograms by the standard technic, supplemented if necessary by films made with the Buckey grid or with a fine fixed grid of the Lysohm type, will fail to show any cavity present, it is in these very instances of difficult decision that laminagraphs of the chest are most valuable. Moore<sup>36</sup> has shown this clearly. Sharpest delineation is obtained by apparatus designed and built specially for this purpose; yet Zintheo<sup>37</sup> described a simple and relatively inexpensive method whereby the ordinary x-ray table can be fitted to obtain tomographic chest films.

Photography of fluoroscopic images of the chest has been made possible by technical advances in the brilliance of fluoroscopic screens and in the speed and fineness of grain of photographic emulsions. At the cost of very little sacrifice of detail this method promises to answer the problem posed by original expense and storage space in the roentgenologic study of large numbers of people. Individuals in this country and in Germany have used cameras with fast lenses of the "candid camera" type to produce small pictures of the fluoroscopic image, which can then be projected up to the usual 15 by 17 inch size for reading. Such an arrangement is described by Griesbach<sup>38</sup>. It consists essentially of a camera set rigidly in a lightproof box a yard in front of a fast fluoroscopic screen and fine grid. The patient steps between the tube and screen and a short exposure is made. In this way it takes about a minute and a film costing ten cents to obtain a satisfactory record of the pulmonary condition in each individual. Only the smallest and least dense lesions are apt to be missed. The error involved has been estimated by those using this method as about two or three

per cent. All doubtful cases or those showing lesions which require clinical attention are, of course, referred for chest roentgenograms by the standard technic. At present the commercial development of this method by the manufacturers of photographic and x-ray equipment is under way. In Germany it is being used in serial x-ray studies of large sections of the population to detect and to control pulmonary tuberculosis. Its greatest usefulness seems to lie in this field. The rolls of microfilm require little storage space. The New York City Department of Health is considering the use of microfilm reproductions of their huge collection of standard chest roentgenograms to obtain readily stored, permanent records<sup>37</sup>. For the roentgenologist and for the physician referring a patient to him for chest examination, such miniatures afford a valuable graphic record to file with the interpretation.

The frequency and importance of tracheobronchial tuberculosis has been rediscovered by the use of the bronchoscope. Long recognized by pathologists, this complication of pulmonary tuberculosis can now be diagnosed and treated before the terminal stage. Routine bronchoscopy of 272 cases of pulmonary tuberculosis by McIndoe<sup>44</sup> showed bronchial tuberculosis in 11 per cent and questionable involvement in another 5 per cent, an incidence in agreement with the findings of other observers. The ulcers and granulations are successfully treated through the bronchoscope by Riggins<sup>45</sup> and others, by cauterization with the electrocautery or silver nitrate solutions and sometimes dilatation. Without treatment the prognosis of this condition is almost uniformly bad.

#### BACTERIOLOGY AND IMMUNOLOGY

Bacteriology and immunology, daughter sciences of pathology, continue to furnish important information about pulmonary diseases. Among the bacterial diseases, the greatest strides have been taken in our advance against two of the most lethal, pneumonia and tuberculosis.

In the diagnosis and in the decision as to the treatment of pulmonary tuberculosis it has been found that sputum examinations

are often impossible because expectoration is absent. Yet for proper treatment and prognosis an exact knowledge of the presence of an open lesion is necessary. The recent popularization of gastric lavage with examination of the fasting stomach contents for tubercle bacilli has gone far to solve this problem. Stiehm<sup>40</sup> and Kayne<sup>41</sup> report from 35 per cent to 75 per cent of minimal and early cases of pulmonary tuberculosis positive by this method. No case can be considered "closed" tuberculosis until the gastric contents have been shown to be free of tubercle bacilli by smear, concentration, and culture. Methods for the concentration and staining of tubercle bacilli in the sputum or other bodily fluids continue to improve<sup>42</sup>. The fluorescence microscope is reported by Herrmann<sup>43</sup> to furnish a more reliable as well as easier and quicker method of sputum examination than the staining methods.

The tuberculin patch test of Vollmer<sup>46</sup> has been shown to be reliable and equivalent to the Pirquet test or 0.1 mgm. of O.T. by the Mantoux test. This is particularly valuable in pediatric practice and in mass studies of children or young adults for case finding in tuberculosis, as this modernization of the older Moro percutaneous test is non-traumatizing, simple, safe, and economical. It will be used much more widely. The whole subject of the place of tuberculin testing in diagnosis with its value and its limitations is being restudied with profit by Long<sup>47</sup> and others.

The relation of tuberculo-immunity to allergy has been of great interest since the work of Rich and McCordock<sup>48</sup> demonstrated that immunity and allergy can be dissociated. In experimental animals Follis<sup>49</sup> has found antibodies and a decreased tendency to caseation with tuberculosis after complete desensitization to tuberculo-proteins. Willis<sup>50</sup> observed sufficient improvement clinically in a small series of desensitized patients to warrant further trial of this method of treatment in severe cases of pulmonary tuberculosis. The old tuberculin treatment is, therefore, possibly coming back under a more scientific control.

The condition called Boeck's sarcoid, or, by Pinner<sup>51</sup>, non-caseating tuberculosis, is related to this problem of allergy in tuberculosis. While it cannot yet be considered proved that this is a form of tuberculosis, evidence is accumulating to that effect. It has come to be recognized that Boeck's disease involves not only the skin and lymph glands, but also the lungs and other viscera. In the lungs it simulates a disseminated pulmonary tuberculosis with a mild and benign course. There is, as a rule, a skin anergy to tuberculin. The pathologic picture is one of tubercle formation without caseation. Occasional persons later develop the ordinary form of tuberculosis when allergy reappears and tubercle bacilli may be found. If this condition is borne in mind by clinicians and radiologists, occasional cases in young adults calling for this diagnosis will be found.

The treatment of pulmonary tuberculosis continues to improve its results by the earlier and better selected use of the armamentarium of collapse therapy. With the prompt diagnosis and proper combination of hospital and collapse treatment, the case mortality rate from pulmonary tuberculosis should be reduced well below 20 per cent.

#### PNEUMOCOCCAL PNEUMONIA

Interest in the subject of pneumococcal pneumonia is so intense as a result of the new methods of treatment that the subject rightly calls for an entire paper devoted to its chemotherapy alone. Sulfapyridine comes to our aid at the instant that the serum treatment of pneumonia has graduated from the primary grade to become an effective measure against a number of pneumococci. Type specific serotherapy is shown by Thompson et al.<sup>52</sup> to be capable of reducing the pneumonia mortality below 10 per cent for Types I, II, V, VII, VIII, and XIV in patients under 40. Adequate dosage of rabbit antiserum must be given before the fifth day of the disease. Serum aids the patient's immunity and produces a true crisis, while sulfapyridine attacks the organism and holds it in check until the immune mechanism can act. Therefore, the two methods of treatment are truly supplementary. The more expensive serum

can be reserved for patients over 50, those with severe disease and bacteriemia, and those who cannot tolerate the drug or who fail to respond to it. For the first time a plan can be drawn up for the systematic and widespread treatment of pneumonia at the hands of the general medical profession. By the proper utilization of sulfapyridine and serum the mortality from pneumococcal pneumonia can be reduced to one-half or one-third of the present rate. The recent book of Heffron on pneumonia is recommended.

The introduction of specific pneumococcal polysaccharides for use in an intradermal test furnishes us with an exact control of the dosage of serum. MacLeod<sup>53</sup> reports that in 80 per cent of cases the necessary dosage was successfully checked by skin testing with type-specific polysaccharide. This has been confirmed by a number of other workers in the past year. The test becomes positive at once when an adequate dose of serum has been given. In this way it is possible that some economy in the use of serum may be effected. The test entails having on hand specific polysaccharide for each of the types of anti-serum being used. Therefore, its use will probably be limited to hospitals and medical centers. In the prevention of pneumococcal pneumonia progress is reported by Smillie<sup>54</sup>, using small doses of specific capsular substance (2 mg.) subcutaneously. This will protect for several months against the type of pneumococcus used. Under certain conditions, such as necessary exposure to Type I or Type II cases, or in pneumonia epidemics, such immunization may be of value.

In the difficult field of virus infections of the respiratory tract there are signs of some progress. Reimann<sup>55</sup> and Rainey<sup>56</sup>, among others, report a type of pneumonia with characteristic clinical features and chest roentgenograms. Reimann was able to isolate an apparently specific virus in certain of these cases. Goodpasture et al.<sup>57</sup> have described the clinical course and the postmortem findings in cases of virus pneumonia in children. It is to be hoped that further study and new methods will throw

more light upon the nature and prevention of the many infections of this general type, ranging from the common cold to epidemic influenza.

#### SUMMARY

There is little to say by way of comment. In the study of pulmonary diseases we are in the midst of the story. Perhaps one should conclude by the usual statement of the magazines, "To be continued." Our progress in learning the anatomy, physiology, and pathology of the lungs is bearing fruit in the medical and surgical treatment of many conditions heretofore ruinous to health and often fatal. The final chapter of that Odyssey is not yet in sight. The illustrations which I have selected are but a few of many possible, and perhaps not the best. Those interested will find in the medical literature of the past few years and in the journals of 1940 more detailed accounts of fundamental and derivative steps in the study of pulmonary disorders.

#### REFERENCES

1. Churchill, E. D., and Belsey, R.: Segmental pneumectomy in bronchiectasis; lingula segment of left upper lobe, *Ann. Surg.*, 109:481, 1939.
2. Semb, C.: Thoracoplasty with extrafascial apicolysis, *Acta chir. Scandinav.* (supp. 37), 76:1, 1935.
3. Nissen, R.: Critical review of extrapleural pneumothorax, *Brit. M. J.*, Jan. 21, 1939.
4. Jacobaeus, H. C.: Bronchspirometry: review of present experiences and some further investigations, *J. Thoracic Surg.*, 7:235, 1938.
5. Courmand, A., Richards, D. W., and Darling, R. C.: Pulmonary function in pulmonary tuberculosis under various forms of collapse therapy, *Am. Rev. Tuberc.*, 40:487, 1939.
6. Lindskog, G. E.: Changes in pulmonary volume following lobectomy for bronchiectasis, *J. Clin. Investigation*, 18:251, 1939.
7. Whitehead, W. K., and Miller, A. T., Jr.: The clinical evaluation of respiratory function, *Am. Rev. Tuberc.*, 41:1, 1940.
8. Steinberg, I., Robb, G. P., and Roche, U. J.: A visualization study of the circulatory changes resulting from the collapse therapy of pulmonary tuberculosis, *Trans. Nat. Tuberc. Assn.*, 1939, p. 30.
9. Christie, R. V.: Pulmonary congestion following artificial pneumothorax; its clinical significance, *Quart. J. Med.*, 5:327, 1936.
10. Boothby, W. M., Mayo, C. W., and Lovelace, W. R.: One hundred per cent oxygen; indications for its use and methods of its administration, *J. A. M. A.*, 113:447, 1939.
11. Fine, J., Hermanson, L., and Frehling, S.: Further clinical experience with 95 per cent oxygen for absorption of air from body tissues, *Ann. Surg.*, 107:1, 1938.
12. Barach, A. F.: Use of helium in treatment of asthma and obstructive lesions in larynx and trachea, *Ann. Int. Med.*, 9:739, 1935.
13. Behnke, A. R., and Williams, T. L.: Medical aspects of the rescue and salvage operations and the use of oxygen in deep sea diving, *U. S. Naval Med. Bull.*, 37:629, 1939.
14. Fried, B. M.: Primary carcinoma of lung; bronchiogenic cancer—clinical and pathological study, *Medicine*, 10:373, 1931.

15. Halpert, B.: Pathologic aspects of bronchiogenic carcinoma. *New Orleans M. & S. J.*, 91:439, 1939.
16. Arkin, A., and Wagner, D. H.: Primary carcinoma of lung; diagnostic study of 135 cases in four years. *J. A. M. A.*, 106:587, 1936.
17. Connolly, A. E.: Superior pulmonary sulcus tumour. *Brit. J. Radiol.*, 8:781, 1935.
18. Ray, B. S.: Tumors at apex of chest, *Surg., Gynec. & Obst.*, 67:577, 1938.
19. Soper, W. B., and Oughterson, A. W.: Thoracoscopy and biopsy in the diagnosis of pleural malignancy. *Trans. Assoc. Am. Phys.*, 51:442, 1936.
20. Craver, L. F., and Binkley, J. S.: Aspiration biopsy of tumors of lung. *J. Thoracic Surg.*, 8:436, 1939.
21. Gloyne, S. R.: Cytology of sputum. *J. Kansas Med. Soc.*, 60:253, 1939.
22. Schlesinger, M. J.: Carcinoma cells in thoracic and in abdominal fluids. *Arch. Path.*, 28:283, 1939.
23. Gardner, L. U.: Etiology of pneumoconiosis. *J. A. M. A.*, 111:1925, 1938.
24. Denny, J. J., Robson, W. D., and Irwin, D. A.: Prevention of silicosis by metallic aluminum: preliminary report. *Canadian M. A. J.*, 37:1, 1937.
25. Gardner, L. U.: Report of the Director, Annual Report of Saranac Laboratory, 1938, p. 9.
26. Sante, L. R.: Cystic disease of the lung. *Radiology*, 33:152, 1939.
27. Weinberg, J.: Experimental production of bronchiectasis. *J. Thoracic Surg.*, 6:402, 1937.
28. Kjaergaard, H.: Pneumothorax simplex. *Acta. med. Scandinav.*, 80:93, 1933.
29. Perry, M. A.: Spontaneous pneumothorax. *Quart. J. Med.*, 8:1, 1939.
30. Hamman, L.: A note on the mechanism of spontaneous pneumothorax. *Ann. Int. Med.*, 13:923, 1939.
31. Kirschner, J. J.: Spontaneous pneumothorax; etiological considerations. *Am. Rev. Tuberc.*, 40:477, 1939.
32. Myers, D. W., and Blades, B.: Clinical and roentgenological features of pulmonary abscess located in superior division of lower lobes. *J. Thoracic Surg.*, 8:321, 1939.
33. King, D. S.: Right middle lobe and lateral roentgenogram. *J. Thoracic Surg.*, 6:666, 1937.
34. Rigler, L. G.: Roentgen study of mode of development of encapsulated interlobar effusions. *J. Thoracic Surg.*, 5:295, 1936.
35. Keefer, C. S.: Abscess of mediastinum following acute tonsillitis. *Ann. Int. Med.*, 11:1426, 1938.
36. Moore, S.: Body section roentgenography with laminagraph. *Am. J. Roentgenol.*, 39:514, 1938.
37. Zintheo, C. J., Jr.: Sectional roentgenography of chest. *Am. Rev. Tuberc.*, 39:204, 1939.
38. Griesbach, R.: Small picture photography of fluoroscopic image. *Ztschr. f. Tuberk.*, 82:81, 1939.
39. Edwards, H. R.: Personal communication.
40. Stiehm, H. R.: Review of a five year tuberculosis program among University of Wisconsin students. *Am. J. Med. Sci.*, 194:340, 1937.
41. Kayne, G. G., and Hounslow, A. G.: Examination of gastric contents for tubercle bacilli in adults. *Brit. M. J.*, 1:1170, 1939.
42. Petroff, S. A., and Schein, P.: Concentration and staining of tubercle bacilli. *Quart. Bull. Sea View Hosp.*, 4:145, 1939.
43. Herrmann, W.: Detection of tubercle bacilli under the fluorescence microscope. *Deutsche med. Wchnschr.*, 64:1354, 1938.
44. McIndoe, R. B., Steele, J. B., Samson, P. C., Anderson, R. S., and Leslie, G. L.: Routine bronchoscopy in patients with active pulmonary tuberculosis. *Am. Rev. Tuberc.*, 39:617, 1939.
45. Riggins, H. M.: Tracheobronchial tuberculosis—pathogenesis, pathology and pulmonary sequelae. *Trans. Nat. Tuberc. Assn.*, 39:617, 1939.
46. Vollmer, H., and Goldberger, E. W.: Evaluation of tuberculin patch test. *Am. J. Dis. Child.*, 57:1272, 1939.
47. Long, E. R.: The tuberculin test, its value and its limitations. *Am. Rev. Tuberc.*, 40:607, 1939.
48. Rich, A. R., and McCordock, H. A.: Enquiry concerning role of allergy, immunity, and other factors in pathogenesis of human tuberculosis. *Bull. Johns Hopkins Hosp.*, 44:273, 1929.
49. Follis, R. H., Jr.: Effect of preventing development of hypersensitivity in experimental tuberculosis. *Bull. Johns Hopkins Hosp.*, 63:283, 1938.
50. Willis, H. S., and Jocz, T. R.: Treatment of tuberculosis by tuberculin desensitization. *Am. Rev. Tuberc.*, 39:318, 1939.
51. Horton, R., Lincoln, N. S., and Pinner, M.: Non-caseating tuberculosis; case reports. *Am. Rev. Tuberc.*, 39:186, 1939.
52. Thompson, L. D., Edwards, J. C., and Hoagland, C. L.: Experiences in the treatment of lobar pneumonia. *Ann. Int. Med.*, 13:1138, 1940.
53. MacLeod, C. M., Hoagland, C. L., and Beeson, P. B.: Use of skin test with type-specific polysaccharides in control of serum dosage in pneumococcal pneumonia. *J. Clin. Investigation*, 17:739, 1938.
54. Smillie, W. G.: Prevention of pneumonia. *N. Y. State J. Med.*, 38:1485, 1938.
55. Reimann, H. A.: An epidemic disease of the respiratory tract. *Arch. Int. Med.*, 65:138, 1940.
56. Rainey, W. G., and Burbridge, J. R.: Acute pneumonia or atypical pneumonia. *Journal-Lancet*, 59:101, 1939.
57. Goodpasture, E. W., Auerbach, S. H., Swanson, H. S., and Cotter, E. F.: Virus pneumonia of infants secondary to epidemic infections. *Am. J. Dis. Child.*, 57:997, 1939.

# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio

For one year: Leon J. Menville, M. D., Chairman.

William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D.,  
Vice-chairman

H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D.,  
Secretary.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

Edwin L. Zander, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

W. A. Rogers, M. D.

Rhett McMahon, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*  
1430 Tulane Avenue

*SUBSCRIPTION TERMS: \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.*

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

*THE JOURNAL does not hold itself responsible for statements made by any contributor.*

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

---

## THE NATIONAL PHYSICIANS' COMMITTEE

The full title of this organization is The National Physicians' Committee for the Extension of Medical Service. Furthermore it is a "non-political, non-profit organization for maintaining ethical and scientific standards and extending medical service to all the people." The Committee

was organized as a trust last November, with a Board of Trustees and a Central Committee. The Central Committee has materially enlarged its membership. The officers and trustees are men who have been prominent in the American Medical Association and are recognized as outstanding physicians throughout the country. The Executive Board, for example, is composed of Dr. Edward H. Cary, Chairman; Dr. Austin Hayden, Secretary; and Dr. N. S. Davis, III, Treasurer. Such men as Drs. Irvin Abell, Roger I. Lee, C. B. Wright, W. F. Braasch, as well as others make up the Executive Board. So much for the Committee and its set up.

This Committee was established to fight the brave fight for organized medicine. The American Medical Association is primarily a scientific organization which does a tremendous amount of investigative and scientific work in practically all and every one of the various fields of medicine. It is absolutely and completely under the control of the medical profession. Because it is a non-profit, scientific, educational foundation, it is not required to pay income taxes nor social security taxation. Were the American Medical Association to extend its activities to certain economic branches of medicine there is absolutely no doubt whatsoever that the status of the organization would be reconsidered by the authorities in Washington and it would have to pay a huge income tax which would do tremendous harm to the organization and to medicine in general. The important Councils would have to restrict their activities, the special journals that are published without profit and at a loss frequently, would have to be curtailed or discontinued. Other important activities would have to cease were the income of the American Medical Association materially reduced did an income tax have to be paid.

The profession as a whole would be seriously affected by many of the various bills put forth not only in the Congress of the United States but also in various state legislatures. In order to fight bureaucratic control of the medical profession this group of men, "the minute men of Ameri-

can medicine," have been organized. Furthermore, it was felt that this group can publicize and keep informed the American public as to legislation which the average medical man would believe to be distinctly harmful to the population as a whole, both from the viewpoint of good medical care, and furthermore from the financial standpoint. Thus, for example, the Wagner Bill, were it put into effect, would probably cost the country as much as three billion dollars a year, an expenditure out of all proportion to do the hypothetical good the passage of this bill might do.

In order to function this Committee must have funds. A considerable amount has already been contributed by physicians. Some have given largely but it is only by very general contributions will there be enough money available to carry out the purposes of the organization. County medical societies already have subscribed in amounts varying from \$50-\$100; clinics and hospitals have done likewise but the contributions from the profession as a whole have been relatively small in number. So far approximately only 5,000 doctors have given any money. Doctors wishing to contribute may do so through their local committeemen or checks may be sent directly to the National Physicians' Committee, 700 N. Michigan Ave., Chicago, Illinois.

---

### ENDOMETRIOSIS

It is really quite remarkable that a condition which was not popularized until the appearance of Sampson's paper in 1921 has become at the present day one of the most frequent conditions occurring in the practice of gynecology. According to Hooper,\* gynecologists are reporting evidence of this condition in as many as one-third of all patients operated upon. Hooper wonders whether this is a new disease, and if so, why, or whether it is because the present day gynecologist is more acute in his observations of pathologic entities than was the man in the past. He doubts this. He speculates as to whether or not the modern

interest in endocrinology may not have focused the eyes of the medical world on this condition. Be that as it may, in the last few years there has been a tremendous amount of writing on this subject. He hypothesizes also why in some cases are invasive and others are not, why does the condition start, what limits its growth.

Suggestive of endometriosis are the following symptoms: Dysmenorrhea lasting throughout the period, backache, pain at time of ovulation, swelling of the groin, leukorrhea, rectal and bladder bleeding, nervous instability, as well as other symptoms. As a rule all these are not present and there may be only one or two. Occasionally there are no symptoms in the earlier cases which would suggest the possibility that endometriosis is present.

Hooper states that the disease can always be cured, but at what a price. If it is possible to make a diagnosis without operation, attempt to be conservative is his advice. On the whole, however, medical treatment is quite unsatisfactory. The patient may be carried along for a period of time, giving pituitary-like substances to control the menorrhagia, at the same time hygienic and symptomatic measures which include rest, sedatives, and dilatation and curettage which may be repeated from time to time. He suggests following this line of treatment for about a year and then finally probably having the patient come to operation. Conservatism is his plea, leaving an ovary or even a part of one so the patient may subsequently have children and while not cured they will be comparatively symptom free. He stresses the importance of the surgeon telling the patient that he is going to do only a conservative operation and that it may be necessary later to do a more extensive one. He says under these circumstances a patient has been given a chance. A radical operation necessarily has to be done on the older woman but in the younger ones attempt conservatism. A radical operation consists of bilateral oophorectomy, following which there is a remarkable regression of the masses. Mechanical adhesions must be cleaned up, it is not essential to remove

---

\*Hooper, George: The diagnosis and treatment of endometriosis, *Canad. M. A. J.*, 42:243, 1940.

surgically the secondary deposits of endometrial tissue. It is this complication of adhesions that makes the operation a severe one. Lastly, he suggests that under no circumstance following the radial operation should estrogenic hormones be given. They will bring about a recurrence of symptoms.

---

#### AN INTERESTING RESEARCH

At the recent meeting of the American College of Physicians in Cleveland the Johns Phillips Memorial Prize was awarded to Dr. René Jules Dubos of the Rockefeller Institute. Dr. Dubos is a member of the staff of Dr. Avery's department to whom this prize was awarded in San Francisco several years ago.

Dubos' studies really are a continuation of those of Avery who first stripped the capsule from the pneumococcus and made possible certain advances in the specific treatment of pneumonia. Avery's work was potentially a most important observation. Dubos' studies opened up this field of investigation still further. He has found that in the soil there occurs a spore-bearing organism which is destructive to many micro-organisms, notably pneumococcus, streptococcus and *B. diphtheriae*. The

crystalline material extracted from this bacillus which is capable of exerting a tremendously powerful effect on bacterial organisms *in vitro*, is non-protein in character. So potent is this toxic substance that a fraction of a milligram will kill virulent pneumococci in two hours. In honor of Gram, of gram-stain fame, and because it works most specifically on the gram-positive organisms, this crystalline substance has been called "gramicidine."

The work of Dubos is still in the experimental stage. He has been able to show that in animals, at least, this material works almost miraculously. It will be interesting to observe what the results of this substance will be in the treatment of human beings. Nowadays the use of sulfonamide compounds in the treatment of so many acute infections has become so general and the results have become so satisfactory, really it is hard to concede that a preparation would be evolved which would be more satisfactory than sulfanilamide or sulfapyridine. Time will tell. It certainly would appear that the chemotherapy of the bacterial diseases has progressed rapidly within the last very few years. It may be that ultimately man will die only as result of automobile accidents, from the ravages of time on the vascular system, or from malignant disorders.

---

## HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### TOURO INFIRMARY

New Orleans

On Wednesday, April 10, at 8 p. m., there was held the regular meeting of the Medical Staff. The following subjects were presented: Clinicopathologic Conference by Dr. John A. Lanford; Unusual Cases of Malignancy in Infancy, Dr. Charles J. Bloom; Elbow Injuries by Dr. Frank L. Loria.

---

### HUEY P. LONG HOSPITAL

Pineville

During the month of February, 1940, the Huey P. Long Hospital, of Pineville, innovated weekly staff meetings which consist of general discussions and of clinical and pathological conferences at which all deaths are discussed and interesting au-

topsy specimens are presented. These meetings have been conducted under the supervision of Dr. O. W. McFarland, superintendent of the hospital, and Dr. John C. Connell, staff pathologist.

The following cases of interest have been presented since innovation of the meetings:

1. A case of tenosynovitis of one finger, which had been adequately drained prior to admission. Patient developed multiple bilateral lung infarcts with abscess formation, mural abscess of the heart and multiple kidney abscesses.

2. Two cases of bleeding in infancy were discussed: the first being a hemorrhagic disease of the new born; the second, acute leukemia in a six weeks' old baby. Vitamin K and its effect upon the prolonged prothrombin time in premature infants was discussed.

3. A case of a white male who presented the clinical picture of subacute perforating peptic ulcer



but at operation presented an apoplexy of the left gastric artery.

4. Several deaths from lobar pneumonia were discussed. The pathologic specimens showed that although the temperature decreased to normal and the toxic symptoms were relieved following the administration of sulfapyridine, nevertheless the pathologic process was still present and passed through the usual course of lobar pneumonia.

5. A case of a white male presenting an acute gangrenous cholecystitis with a ruptured gallbladder and a subdiaphragmatic abscess.

6. A case of subacute bacterial endocarditis associated with a six months' pregnancy.

7. Carcinoma of the tail of the pancreas with generalized metastasis.

8. Carcinoma of the pylorus of the stomach with generalized metastasis.

S. A. Barkoff, M. D., Sec.

#### HOTEL DIEU

New Orleans

The regular monthly meeting of the Staff of Hotel Dieu was held on Monday, April 15, 1940, at 8:00 p. m. in the Assembly Room of Hotel Dieu. The meeting was called to order by the President, Dr. Lucien A. LeDoux, and with the Secretary, Dr. C. E. Gorman, at the desk.

The Pathological Department presented a clinicopathologic case report of a male child, two years of age, with a suddenly appearing tumor in the right axilla. This mass was excised and proved to be a cavernous lymphangioma with secondary hemorrhage.

The Scientific Program consisted of:

"Survey of Recent Advances in Radiology, Diagnosis and Treatment" by Dr. L. A. Fortier and Dr. T. T. Gately.

Dr. Max M. Green presented the following case report:

#### CALCIFICATION OF KIDNEY

The subject of tuberculous calcification of the kidney is fairly well covered in literature, but non-tuberculous calcification is little mentioned, except in case reports in connection with cysts, tumors, stones and pyonephrosis. Much experimental and pathologic work has been done by Virchow, Howland and others.

In the human body, calcification is physiologic or pathologic. Physiologic calcification is a normal process, concerned with the deposition of calcium in formation of bone. Pathologic calcification gives calcium salts in organs which do not ordinarily show it. Pathologic calcification is classified under two heads: (1) Metastatic; (2) non-metastatic. In the metastatic type, deposit of calcium occurs in normal or uninjured tissue, whereas in non-metastatic type it occurs where localized changes occur in the tissues (i. e. degeneration or necrosis from circulatory, toxic or metabolic disturbances) predisposing to calcium deposits.

The role of nephritis as a factor: Pathologic calcification of the kidney was called to our attention by Schmidt in 1913. It is believed to be due to decrease in solubility of calcium in the blood, caused by decrease in albumin of blood, which is caused by increased loss of albumin by the kidneys. The albumin substances and phosphorus normally act as buffers to keep calcium in solution and prevent its precipitation.

Dystrophic (non-metastatic) calcification is the most common type of pathologic calcification encountered. It is generally agreed that any dead or damaged tissue infected or not infected, so large or so situated that it cannot be absorbed, may become infiltrated with calcium salts. The degree of infiltration will be dependent upon the amount of degenerative changes, metabolic disturbances and amount of calcium in the blood. The exact physio-chemical change involved in this is a matter of conjecture.

Robinson, in 1923, demonstrated phosphatose in tissues undergoing calcification and in red blood corpuscles which had hydralizing effect on phosphorus and on hydrogen ion concentration. This condition is increased in certain diseases as osteitis deformans, rickets, osteomalacia (Kay).

Calcium in blood: 9-11.5 mg; 4-5.8 mg. held in solution by parathormone; 3-4 mg. by blood proteins; 2-3 mg. by natural solubility of calcium.

#### CLASSIFICATION

1. Metastatic: Hyperparathyroidism, rickets, fractures.

2. Non-metastatic: Acute and chronic nephritis, primary sclerosis.

3. Non-metastatic (dystrophic).

(a) Abscesses, tuberculosis, and acute pyelonephrosis.

(b) Obstructive, hydronephrosis and pyonephrosis.

(c) Tumors, cysts, polycystic.

(d) Injuries.

(e) Lithiosis.

1. Hyperparathyroidism: Deposits made in the epithelium of the tubules with fine granular casts. Urine sediment shows mainly calcium phosphates.

2. Rickets and renal rickets: Shows dwarfism with interstitial nephrosis with intratubular calcium deposits.

3. Fractures: Calculi may be seen: (1) Usually in some preceding kidney lesion; (2) In crystalloid colloid imbalance due to decalcification of injured bone.

4. Spinal lesions: Calcium deposits said to be due to withdrawn calcium from paralyzed tissues and blood.

#### Non-metastatic Calcification

1. Acute and chronic nephritis: Change in calcium and phosphorus metabolism in these diseases with a lowering in the calcium and an increase in the phosphorus.

*Non-metastatic—Dystrophic*

**Pyelonephritis:** Abscess of subacute or chronic type.

**Tuberculosis:** Calcification in tuberculosis has been considered part of the process and is a common finding. There are two types: (1) In ulcerated areas at or near tips of pyramids; (2) caseated areas in parenchyme.

Some believe that calcification represents stage of healing; others that it is part of general repair process. The latter view seems more logical. Argument against healing is that tubercle bacilli may be found in these calcified areas.

The incidence of calcification in renal tuberculosis is relatively high. Caulk, in 1915, reported 20 per cent; Braash and Olsen reported x-rays on 131 patients operated and found positive shadows in 22 per cent. Crenshaw found 30 per cent in occluded type in a series of 1817 cases.

Braash classified shadows in x-ray of renal tuberculosis under three heads: (1) Scattered small areas in the form of single elongated streaks or multiple punctate areas which are usually confined to one pole of the kidney; (2) single or multiple isolated and circumscribed areas which are of irregular outline and variable density; (3) large irregular shadows of variable density involving a large portion of the entire kidney.

The calcified shadows in tuberculosis are not so well defined as in stones, borders are indistinct and gradually fade into surrounding tissue.

## CASE REPORT

**Chief Complaint:** Urinating blood.

**Present Illness:** Kidney trouble, 17-18 years, little or no pain until last four years; passed numerous small stones. Last March 4, 1939, he had bleeding from kidneys which lasted only a short time. Nothing was done except medicine by mouth. Had x-ray of kidneys about three years ago which showed stones in both kidneys. No cystoscopic examination has been done or other work-up, although he was advised to have a diagnosis worked out. Another attack of hematuria occurred March 3, 1940, passing small stones and blood clots; urine remained very red. Has been treated for hypertension for several years (3-4).

**Past History:** Childhood diseases. No injuries. Appendectomy? No history of tuberculosis or other systemic infections.

**Family History:** Father died of heart disease; mother living and well; seven sisters living and well; one sister died at birth. No history of carcinoma, diabetes or kidney trouble in family.

**Physical Findings:** Blood pressure 168/100. Well developed, well nourished white male, aged 44 years; not acutely ill. Thorax—distant breath sounds all over chest. Abdomen—obese. No masses. Slight tenderness over both renal areas; unable to palpate either kidney. Extremities—negative.

**Laboratory Findings:** K. U. B. and pyelogram: Numerous bilateral renal calculi. Bilateral pyelo-

gram shows ragged irregularity of upper calices on both sides and lawn calyx on left.

**Conclusion:** These findings are compatible with bilateral renal tuberculosis.

**Chest:** X-ray March 10, 1940, shows peri-bronchial infiltration; no evidence of pulmonary tuberculosis.

**Blood Chemistry:** March 7, 1940, N. P. N. 36 mg. Urine: 1.012; reaction, neutral; albumin, sugar acetone and indican, none; casts, none; pus, few cells; blood, many cells.

**Blood Picture:** White blood cells 8,750; polymorphonuclears 75; red blood cells 4,700,000; hgb. 75; coagulation time 3' 50"; bleeding time 2' 30".

**Cystoscopic Specimen:** Right—4 plus pus with clumps; 4 plus red cells.

Left—few pus cells with mucus; 4 plus red cells.

Bladder—4 plus pus with mucus; 4 plus red cells.

Smear and culture—negative in each case.

Wasserman—negative. Blood calcium 10.5 mg; blood phosphorus 3.2 mg.

Culture for tubercle bacilli negative for growth.

**Cystoscopy:** Bladder normal except for trigonitis. Both orifices normal; no evidence of tuberculosis in bladder. Bleeding from right side; No. 6 catheter up both ureters all the way easily; 10 c. c. bloody urine on the right; no stasis on the left. Indigo carmen appeared on the right in 5' 25"; on the left in 3' 25"; fair concentration on both sides.

**Treatment:** Indwelling right ureteral catheter, two days. Ceanathyn, one-half ounce every four hours. Koagmin 2 c. c. (h) three doses.

**Conclusion:** An attempt had been made to bring out some of the causes of calcification of the kidney, both physiologic and pathologic. The case presented here shows an extensive bilateral calcification of the kidney, which has evidently been present for a long time. The stones which he has been passing for eighteen years are probably the result of the same process which we find present today. An exact diagnosis cannot be made, but tuberculosis of both kidneys with extensive calcification appears to be the most logical conclusion in spite of the fact that we have been unable to obtain either tubercle bacilli or a positive culture for tubercle bacilli. A rather guarded prognosis should be given because of the extensive changes in both kidneys, whatever may be the exact cause.

## DISCUSSION

Dr. Robert F. Sharp (New Orleans): The marked similarity of the interesting case that Dr. Green has just reported and a case which came under my observation, prompts me to report it briefly here. My case is of especial interest in so far as the condition has terminated fatally.

N. J. R., white male, aged 56, was first seen November 10, 1937, complaining of blood in the urine, recurrent attacks of fever and chills and renal colic on either side.

The high points of his present illness were that he had been passing blood in his urine off and on

since 1912 (twenty-five years). The condition was not severe until about 1921, at which time he was first cystoscoped and diagnosed as having tuberculosis of the kidney and renal calculi. The diagnosis of tuberculosis was not substantiated by the finding of tubercle bacilli in the urine; likewise, there was no evidence of tuberculosis in any other organ of the body. For the next sixteen years, he continued to suffer with the renal colic, chills and fever and to have hematuria. He passed small stones on different occasions. He received urologic treatment both in the out-patient clinic and in the hospital during this time. He was able to continue with his occupation as a railroad switchman, except during the attacks of renal colic, chills and fever.

When he presented himself to me, his condition was essentially the same as it had been the preceding several months, with the exception of more frequent attacks of hematuria, renal colic and fever. His general health had declined somewhat, but there had been no definite loss of weight. Urinary index:

D 8 — 10  
N 5 — 6

and there was some burning on urination.

Past history and family history were irrelevant.

He was a well developed and well nourished middle-aged man, appearing to be in fairly good general health. There was slight tenderness over each kidney, anteriorly and posteriorly. The prostate was enlarged 2 plus, firm and sensitive; secretion showed 4 plus pus. Urine was grossly bloody, slightly alkaline, stained sediment showing a comparatively small number of gram-negative bacilli. Cystoscopy and pyelogram two days later, showed a low grade cystitis with no evidence of tuberculosis. There was about 25 c. c. stasis in each pelvis, which was cloudy and blood-tinged. Stains from each side were negative for tubercle bacilli. There were a few gram-negative bacilli present in each side. Kidney, ureter, and bladder revealed extensive bilateral calcification throughout the parenchyma, the left being more involved than the right. There were a few smaller shadows in the region of the pelvis and calices on each side. Pyelogram showed bilateral dilatation of the pelvis with clubbing of the calices and dilatation of the ureters.

During the next four months, patient was seen by me only whenever he had a kidney colic or profuse hematuria occurred. The next information obtained after this was from his record at the I. C. Hospital. He was readmitted there October 15, 1938, in an apathetic state, unable to give an intelligent history. His temperature varied from 99° down to below normal. N.P.N. was 400 mg. per 100 c. c. blood. He died on October 26, 1938. No autopsy was performed.

Examination of the record of his six admissions to I. C. Hospital from 1922 until 1938, revealed an alkaline urine on every occasion except one. His

urine was alkaline each time examined at my office. No culture for urea splitting organisms was done.

I do not, however, consider that this condition was caused by an alkaline infection, because of the marked calcification of the parenchyma and the comparatively small amount of calcareous material in the pelvis. The urine consistently showed a marked albuminuria even in the absence of blood. Repeated smears for tubercle bacilli during his illness were negative.

In view of the urinary findings, prolonged course, lack of evidence of tuberculosis of the bladder or in any other part of the body, I do not believe that this was a case of renal tuberculosis. For lack of a better diagnosis it should, in my opinion, be grouped with the so called "non-tuberculous calcifying pyelonephritides."

From the picture presented by Dr. Green, I am inclined to think his case is an earlier manifestation of the same condition.

—

Dr. Lucien A. LeDoux presented the following case report:

#### FUNCTIONAL UTERINE BLEEDING

Miss B. R., white, aged 20, was first seen on February 20, 1940, complaining of backache and menorrhagia.

*Past History:* Appendectomy four years ago. She had a high fever of undetermined origin in 1939, which lasted for three weeks.

*Menstrual History:* Began at 12 years of age, appearing every 28 to 35 days until December, 1939, when her period failed to appear for the first time. On February 15, about two months later, her menstrual period reappeared and it continued up to February 20, which is 15 days. The first week of its appearance, it was slow in starting but it became moderate in amount, dark in color and she passed large clots. She complained of considerable pain in the right lower abdomen and backache.

*Present Illness:* This dates from February 5. The pain in the lower abdomen and back and the bloody discharge persisted to February 20. She felt very nervous and weak. Her backache appeared aggravated when she sat down and she had frequent desires to go to stool. She gave no bladder symptoms.

*Physical Examination:* A thin, slender, medium sized female, who had the appearance of being very pale and weak. Her temperature was 89.8, pulse 74, respiration 18, blood pressure 100/75. The conjunctivae and mucous membranes of the mouth were anemic looking. There was generalized tenderness but no rigidity of the lower abdomen, the tenderness being more marked across the lower abdomen. No masses were palpable. The hymen was intact and a bright red vaginal discharge of moderate amount was noted.

Rectal examination revealed an enlarged boggy uterus which was in normal position and slightly

movable. Examination of the cul-de-sac and the parametrium gave the impression of fullness without distention. The adnexa was not palpable; as a matter of fact the pelvic survey was difficult, chiefly due to the generalized tenderness.

*Laboratory Examinations:* White blood cells 10,500, total red blood cells 3,800,000, hemoglobin 70 per cent; platelet count 200,000; coagulation time 2½ minutes; calcium 11. Urine (voided) negative, except for numerous white and red blood cells.

As the patient's condition was considered unfavorable, she was admitted to the Hotel Dieu the following afternoon with a diagnosis of functional uterine bleeding. She was put to bed on admission and placed on a medical regimen which consisted of mammary-corpus luteum extract, gynergen and cod liver oil concentrate. No other medications were employed. Laboratory examinations made the day following admission showed the following: Urine (voided) albumin, trace and many red and white blood cells. Blood: Total white cell count had dropped to 6,250 with 74 per cent neutrophils. The red cell count had also dropped to 3,160,000 with hemoglobin of 60 per cent and color index of 1.0.

*Progress Summary:* The patient's general condition improved soon after she was hospitalized. A marked diminution in the amount of vaginal blood loss, which was of a darker color, was noted at the end of 48 hours. Hormone therapy was suspended at this time and the following day the discharge reappeared but was reduced in amount and of variable color. After 48 hours, hormone therapy was renewed and gynergen was used. The discharge progressively diminished, clots were absent and the color became much darker. By the tenth day, the discharge had entirely ceased and she was discharged on the thirteenth day.

She has been seen several times since she left Hotel Dieu. A very definite gain in weight is shown and she states that she feels better than she felt in many months. The white cell count is 6,000, the red cell count has risen to 4,500,000 with a hemoglobin of 80 per cent, the calcium being 10. A normal menstrual period appeared on March 20, approximately one month after hemostatic hormone therapy was employed.

#### DISCUSSION

Dr. Louis Levy (New Orleans): While the value of endocrine extracts is recognized, they should not be considered a panacea as Dr. LeDoux has so cautioned. Mechanical defects, neoplasms should be at all times thought of. I will cite the case of a patient who after running the gamut of extracts, numerous curettages, bled to the extent that several transfusions were necessary. She was promptly relieved by the suspension of a uterus that was retroflexed and boggy and on elevation, contracted in my hands and retained its tonicity after the suspension. She is now free of bleeding between

menstrual cycles. The duration of this relief is over ten years.

#### J. T. NIX CLINIC

New Orleans

At the meeting held in April, 1940, Dr. Manuel Garcia presented the following paper:

#### TREATMENT OF CANCER OF THE CERVIX

Reports from large clinics have shown very impressive improvement in the end results of the treatment of cancer of the cervix by radiation. In stage I the proportion of five year control has risen from 50-60 per cent to 83-100 per cent (Hurdon, Meigs, Schmitz); the change is even more remarkable in stage IV cases, the gain being from 0-7 per cent to 25-36 per cent (Schmitz, Lacassagne). Intermediate stages show corresponding betterment, while for all cases treated the average of "cures" has climbed from around 28 per cent to 41.2, 46.8, 52.6 per cent (Hurdon, Lacassagne, Schmitz). In the face of such results the treatment of patients afflicted with cancer of the cervix becomes a very serious responsibility. It would seem advantageous to examine the reasons for this fortunate trend and to consider the possibility of offering such improved outlook to the patient remote from centers of clinical cancer research.

The most striking finding in the literature is the fact that good results are obtained by a wide variety of methods of radiation. Some have interpreted this to mean that technic is not important and that any scheme can be successful provided a sufficient number of early cases or of patients with radiosensitive tumors apply for treatment. Yet no correlation has been shown between improved results and the proportion of favorable cases in successive series reported by several institutions. Frazell has demonstrated a direct relationship between the dose of radiation given to the entire neoplasm and the incidence of five year survivals. It would be more proper, therefore, to say that the various successful technics are different ways of approaching the same goal—the delivery of an effective amount of energy to the primary lesion and to its routes of spread in the pelvis.

This may seem an obvious essential, especially in the light of experiences with the evolution of the surgical treatment of carcinoma of the cervix. But the majority of technics in vogue ten years ago, and even more recently, were intended principally to destroy the cervical tumor and failed to take care of the actual or potential extensions of the disease in the parametrium and the pelvic nodes. This shortcoming has been remedied to some degree by the medical improvements in x-ray equipment, by progress in the methods of measuring and calculating the physical distribution of radiation in the human pelvis, by the introduction of means of enhancing the tolerance of normal tissues to larger doses and by a better understand-

ing of the amounts of radiation needed to kill cancer cells. In addition, the statistics reflect refinements in the clinical management of the patient, such as the greater attention devoted to the urinary obstruction almost invariably associated with the disease, and to the infection of the tumor and the perimetrial tissues. Sepsis is responsible nearly always for the mortality of radium therapy and may alter the plan of treatment to such a degree that the prognosis for the individual patient may become much poorer.

Lucas and Arneson have independently made careful studies of the physical efficiency of different schemes of applying radium to the cervix. They point out that at least two capsules of radium must be employed in the cervical canal to reach the upward extensions of the disease. With beta ray filtration only doses in excess of 3,000 mg. hr. increase the likelihood of serious injuries to the bladder and rectum without improving the effectiveness of the irradiation to the lateral extensions of the tumor. Supplementary radium is preferably used in some vaginal applicator. Physical considerations alone favor the French technic, which, with a total dose of sixty millicuries destroyed, gives adequate irradiation to the cervix and adjacent structures and in addition delivers a significant amount to the parametria. But it has a greater risk of infection and anatomic changes (narrowing of the vault) may make the method unsuitable. Both authors conclude there is no "ideal" method, to be used by preference in all cases. As in all fields of medicine, treatment must be individualized. It is significant, however, that large amounts of radium have no inherent superiority and that the competent physician may secure the full benefits of radium therapy with the small amounts available in all institutions.

Lacassagne has reviewed 79 cases with the carcinoma clinically limited to the cervix, treated by intracavitary radium alone. Three-fourths of the patients survived five years in good health. The remainder died almost entirely of cancer, usually reappearing at a distance from the zone of effective dosage. These excellent results obtained by a group of experts still show that radium alone even in the earliest carcinomas cannot always be expected to sterilize the neoplasm since quiescent cells may lurk beyond reach of gamma radiation. Supplementary treatment is required. Lacassagne himself points out in a group of cases in the same clinical stage in whom external x-ray or teleradium was employed, the five year results improved to 85 per cent. Interstitial radium therapy as tried from below by Arneson or through a laparotomy wound by Delporte and Cahen, Dodd and Cade, and by others, may prove useful in the more advanced

stages of the disease but the methods are still on trial and they carry certain dangers, which require they be adopted with caution.

In Healy's service in the Memorial Hospital of New York, and in most other institutions, x-ray therapy is used to control the disease in the parametria and the pelvic nodes. It is used before radium in an attempt to clear up cervical infection and bleeding. The technic was worked out by Arneson and Quimby and may be carried out in any institution with a 200 KV machine. By using six ports, long distances, and high filtration, the skin can receive over a period of three weeks or more enough radiation to deliver about half the cancer lethal dose to the parametria and the pelvic wall in a woman of average size, without serious injury to the skin itself, the bladder, the rectum or the intestines. With supervoltage equipment the depth dose is increased but experience is as yet too recent to establish the necessity of treating all patients with machines running above 200 KV.

Wintz, Baclesse, and many others have used external x-ray therapy as the sole method of treatment when radium application was contraindicated, or unsuitable or rejected by the patient. In a small series of advanced cases Baclesse obtained 36 per cent five year control. A greater total dose, more ports, more distance and a longer period of treatment are required. In Germany ingenious x-ray tubes have been designed for intravaginal radiation of the primary lesion and the parametria. Merritt of Washington, uses intravaginal x-ray therapy as a substitute for radium in some cases. The cervix is exposed with a Ferguson speculum and aligned with a narrow cone attached to an ordinary high voltage x-ray apparatus. Dr. Robert W. Cooper introduced the method at Charity Hospital several years ago. It has proved useful in the management of patients with severe infections or with very bulky tumors.

#### SUMMARY

Improved results are being reported in the treatment of cancer of the cervix by radiation. The aim of treatment obviously is to deliver an effective dose of energy to the primary lesion and to its routes of spread. Intracavitary radium may be expected to destroy the lesion in the cervix and adjacent structures, but must be supplemented by large doses of x-ray to reach the disease in the lateral zones of the pelvis. These agents are available everywhere and their proper employment can be expected to yield results approaching the figures reported from large centers. Supervoltage equipment and the use of radium interstitially in the parametrium are still on trial as means of improving the results in advanced stages of the disease.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

- May 1. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Hutchinson Memorial Clinic Staff, 8 p. m.  
Mercy Hospital Staff, 8 p. m.
- May 2. Clinico-pathologic Conference, Touro Infirmary 11:15 a. m. to 12:15 p. m.
- May 6. Orleans Parish Medical Society Board of Directors, 8 p. m.  
Clinico - pathologic Conference, Hotel Dieu, 8:15 p. m.
- May 7. Eye, Ear, Nose and Throat Staff, 8 p. m.
- May 8. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Touro Infirmary Staff, 8 p. m.
- May 13. Orleans Parish Medical Society, 8 p. m.
- May 14. Eye, Ear, Nose and Throat Society, 8 p. m.
- May 15. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Charity Hospital Surgical Staff, 8 p. m.  
New Orleans Tuberculosis Hospital Staff, 8 p. m.
- May 16. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- May 17. I. C. R. R. Hospital Staff, 12 noon.  
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- May 20. Hotel Dieu Staff, 8 p. m.
- May 21. Charity Hospital Medical Staff, 8 p. m.
- May 22. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center 2 p. m.  
French Hospital Staff, 8 p. m.
- May 23. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- May 27. Joint Meeting of the Orleans Parish Medical Society with the New Orleans Tuberculosis Committee, 8 p. m.
- May 28. Baptist Hospital Staff, 8 p. m.
- May 29. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
- May 30. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- May 31. L. S. U. Faculty Club, 8 p. m.

During the month of April the Society held one regular scientific meeting and the first quarterly executive meeting, April 8. The following program was presented:

1. Biographical Sketch: Bennett Dowler, New Orleans Physiologist, 1797-1879.  
By.....Dr. H. S. Mayerson.

2. Symposium on Geriatrics:
  - a. General Discussion of Geriatrics.  
By.....Dr. Isidore L. Robbins.
  - b. Nervous and Mental Aspects.  
By.....Dr. Theodore A. Watters
  - c. Medical Aspects.  
By.....Dr. Allan Eustis
  - d. Surgical Aspects.  
By.....Dr. Isidore Cohn
3. Reports of Officers and Committees, First Quarter, 1940, were read.

The Society was host to the Louisiana Medical Society April 22-24. This meeting was well attended and an excellent program presented. It was the best meeting in the history of the Society.

The following doctors were elected to active membership: Drs. Lawrence W. Burt and Zachary J. Romeo. Dr. Frank W. Young was elected to associate and Dr. Henry E. Menage to honorary membership.

## NEWS ITEMS

The Yearbook of General Therapeutics has appointed Dr. Oscar W. Bethea as editor.

Dr. Grace Goldsmith has been elected to Fellowship in the American College of Physicians.

Dr. Richard S. Crichlow was recently promoted from the rank of major to lieutenant colonel in the Army Reserve Corps.

Dr. Cosmo J. Tardo was installed as President of the Virgilian Society of New Orleans, March 26, to succeed Dr. E. A. Bertucci.

Dr. A. J. Hockett presented a paper before the meeting of the Southeastern Hospital Conference, March 28, at Edgewater Park, Miss., his subject being "Practical Business Methods in Dealing with Patients." Dr. Hockett was elected president of the conference for the coming year. New Orleans has been selected as the 1941 assembly site.

Dr. Clarence P. May addressed the Exchange Club on March 26.

Dr. Maurice Campagna was recently appointed medical director of the Orleans Tuberculosis Hospital.

On March 28 and 29 a seminar for physicians of ten surrounding parishes was conducted at the Lafayette Charity Hospital, Lafayette, by the following members of the faculty of the Louisiana State University Medical School: Drs. Gilbert C. Anderson, Richard Ashman, Charles A. Bahn, Isidore Cohn, C. Grenes Cole, Joseph A. Danna, Val H. Fuchs, Peter Graffagnino, James K. Howles, Walter E. Levy, John R. Schenken, Daniel N.

Silverman, H. Theodore Simon, Edwin A. Socola, Carlo J. Tripoli and Henry W. E. Walther.

During the annual health week observed by the Young Women's Christian Association, March 25-30, the following members of the society gave talks: Dr. Warren H. Hebert, March 25; Dr. Clarence P. May, March 27; Dr. M. T. Van Studdiford, March 28, and Dr. Guy A. Caldwell, March 28.

Dr. Roy B. Harrison was elected President of the Missouri-Pacific Hospital Association, which met in New Orleans, March 28.

The Louisiana League for the Hard of Hearing re-elected Dr. Otto Joachim as president at the tenth annual meeting of the organization, March 29. Dr. Arthur I. Weil was elected second vice-president and Dr. Frank R. Gomila, third vice-president. Dr. Val H. Fuchs was named to the board of directors.

The Southern Baptist Hospital staff held its annual banquet at Kolb's Restaurant, March 26, when the following officers were installed: Dr. Charles L. Cox, president; Dr. John T. O'Ferrall, vice-president; Dr. E. Garland Walls, secretary and Dr. Robert F. Sharp, treasurer.

Dr. J. Sauter Muller has been appointed house physician at the new Bienville Hotel.

The following members attended the meeting of the American College of Physicians in Cleveland, April 1-5: Drs. Joseph S. D'Antoni, Grace A. Goldsmith, Ben R. Heninger, Edgar Hull, Philip H. Jones, Jr., Louis A. Monte, John H. Musser and Joseph C. Weilbaeher, Jr.

Dr. Henry Leidenheimer, Jr., presented by invitation a paper, entitled: "Vitamin K and Its Relation to Hemorrhagic Diseases of the Newborn," at the meeting of the New Orleans Gynecological and Obstetrical Society, March 25.

Drs. William H. Gillentine and Neal Owens read papers before the Southern Society of Orthodontists, which met in New Orleans, April 2.

Dr. Michael DeBakey addressed the Shreveport Medical Society, April 9, on the subject of "Perforated Peptic Ulcer."

Dr. Alton Ochsner read a paper on "Peripheral Vascular Disease" before the Escambia County Medical Society, Pensacola, Florida, April 9.

The New Orleans Dental Society celebrated the one hundredth anniversary of the establishment of dentistry as a profession during the week of March 11-18. Talks were given before luncheon clubs and over the radio. Dr. M. B. Varnado was the principal speaker at the banquet held March 11 at the Roosevelt Hotel, talking on "One Hundred Years of Dentistry." Dr. Andrew V. Friedrichs and Dr. Sidney L. Tiblier gave short addresses.

TREASURER'S REPORT

Actual book balance 3/31/40.....	\$4,911.31
March credits .....	\$1,400.94
<hr/>	
Total credits .....	\$6,312.25
March expenditures.....	\$ 971.74
<hr/>	
Actual book balance 3/31/30.....	\$5,340.51

LIBRARIAN'S REPORT

During the first quarter, 220 volumes have been added to the Library. Of these 142 were received by binding, 41 by gift, 2 by purchase and 35 from the New Orleans Medical and Surgical Journal. New titles of recent date have been listed in the Bulletin and in the Journal.

The Library has loaned to doctors during the same time, 3,392 books and journals or more than 6 to each member of the Society. An additional 3,162 items have been loaned to students for overnight use, bringing the total number of books and journals circulated to 6,554, the largest quarterly circulation in the history of the Library. Members of the staff have collected material on 39 subjects during the quarter. The reference work, it should be noted, is in addition to the great use of the Library facilities within the Reading Rooms for calls which can be filled immediately by consultation of the indices or the card catalog.

Edwin L. Zander, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS  
CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in June	Jackson
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Friday in May	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

## RAND—PRESIDENT-ELECT

The many friends of King Rand in the medical profession will be delighted to know that he was selected as President-elect of the State Medical Society at the New Orleans meeting. Shreveport was chosen as the place of the 1941 meeting. As this information was received after going to press, it is impossible to print more than a bare statement. A full account of the meeting and the officers elected will appear in the next number of the Journal.

## OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting was called to order April 4, 1940, at 7:45 p. m. by Dr. D. T. Milam, president. The minutes of the meeting of March 7 were read and approved.

Dr. J. Q. Graves presented a paper on "The Drainage and Treatment of Appendiceal Abscess." This was discussed by Drs. McHenry, Gray, O'Donnell, and Walsworth. Dr. A. Scott Hamilton presented a case of giant cell tumor of bone which had undergone malignant changes. Discussion ensued by Drs. Gray and Moore.

The report of the executive board for the tuberculosis survey and hospital was given by Dr. C. P. Gray, chairman. The board recommended, in the case of the survey, that as far as the positive reactors were concerned, all those who could pay, be sent to a radiologist for x-ray and that the indigent patients be x-rayed by the Tuberculosis Sanatorium. In regard to the staff of the Tuberculosis Sanatorium, the board recommended that each individual member of the Ouachita Parish Medical Society apply for appointment on the staff, the society, officially, not to take any action as to appointment to the staff. A motion was made by Dr. O'Donnell, seconded by Dr. Simonton, that the board file a written report with the secretary; this was carried. Dr. Fisher moved that the report as given be accepted; this was seconded by Dr. O'Donnell and carried.

A letter from the National Physicians' Committee was referred to the Committee on Public Policy and Legislation to be reported on at the next meeting.

Dr. Milam announced that the L. S. U. Extension Service was anxious to present a program before this society, but that it would be more convenient for them if the meeting was held on Friday. Dr. O'Donnell moved that Dr. Milam be appointed a committee of one to make arrangements in New Orleans for this program and that the society meet on the first Friday in May. This was seconded by Dr. Walsworth and carried.

A telegram to Dr. Bendel from Dr. E. L. King in regard to Wassermann tests on pregnant women and Dr. Bendel's answer opposing such a program were read. The telegrams were discussed by Drs. Walsworth and Hamilton. Dr. Walsworth moved that the delegates from the Ouachita Parish Medical Society to the Louisiana State Medical Society

be instructed to oppose any legislation at the State Meeting in regard to compulsory Wassermann tests on pregnant women and that the delegates cooperated with Dr. Bendel in this regard. This was seconded by Dr. Simonton and passed.

A letter from Dr. Nat Gaston, President of the Louisiana State Dental Society, inviting all members of this society to be guests at the meeting of the Dental Society here, was read.

A letter from Dr. J. P. Kranz, Secretary of the Southern Tuberculosis Conference, was read.

A letter from the Rapides Parish Medical Society inviting us to present a program at Alexandria on May 6 was read. Because of the fact that L. S. U. is presenting a program here at that time, this was refused with thanks.

L. L. Titche, M. D. Sec.

COMPONENT SOCIETY OFFICERS  
1940

## CONCORDIA-CATAHOULA BI-PARISH

President: Dr. N. L. Sebastian, Ferriday.

Vice-President: Dr. E. M. Campbell, Ferriday.

Secretary-Treasurer: Dr. John Schreiber, Vidalia.

Delegate: Dr. P. W. Calliham, Harrisonburg.

Alternate: Dr. John Schreiber, Vidalia.

## BOYCE AWARDED GROSS PRIZE

Dr. Frederick Fitzherbert Boyce, Assistant Professor of Surgery in the Graduate School of Medicine of Louisiana State University, has been awarded the 1940 Samuel D. Gross Prize for his research work entitled "The Role of the Liver in Surgery." The prize is offered every five years by the Philadelphia Academy of Surgery, for original research work in the field of surgery, and is in the amount of \$1500. By the terms of the award the material is later published as a monograph.

Among previous winners of the Gross Prize, which is regarded as one of the most distinguished awards to be given in the field of surgical research, are:

Dr. Evarts E. Graham, Professor of Surgery at Washington University School of Medicine, and now President-elect of the American College of Surgeons, who won it in 1920 for his work on empyema.

Dr. John Alexander, Professor of Surgery at the Medical School of the University of Michigan, who won it in 1925 for his work on the surgery of tuberculosis.

Dr. Emile Holman, Professor of Surgery at Stanford University Medical School, who won it in 1930 for his work on arteriovenous aneurysm.

Dr. Owen H. Wangensteen, Professor of Surgery at the University of Minnesota School of Medicine, who won it in 1935 for his work on intestinal obstruction.

Dr. Boyce, the recipient of the 1940 quinquennial award, was formerly full time Assistant Professor



of Surgery at L. S. U., resigning in 1939 to enter the private practice of surgery in New Orleans. He received the B. S. degree from Harvard University in 1927 and the M. D. degree from Yale University Medical School in 1930. He served an internship and surgical residency at Union Memorial Hospital in Baltimore. He is a Fellow of the American College of Surgeons and was the first man in Louisiana to be certified by examination by the American Board of Surgery. In 1939 he was awarded the annual prize (\$100) and medal of the Mississippi Valley Medical Society for his work on thyroid disease.

#### AMERICAN COLLEGE OF PHYSICIANS

A large and enthusiastic meeting of the American College of Physicians was held in Cleveland, April 1-4, 1940. Attending from Louisiana were: Drs. Joseph E. Knighton, T. P. Lloyd, W. R. Mathews, M. W. Matthews, W. Mastin Scott and Stanley G. Wolfe, of Shreveport; Drs. Ben R. Heninger, Edgar Hull, J. H. Musser, Grace A. Gold-Smith, P. H. Jones, Jr., L. A. Monte, J. O. Weilbaeher, Jr. and Joseph S. D'Antoni, of New Orleans; Dr. M. W. Hunter, of Monroe; Drs. O. O. Antony and Earl Jones, of Alexandria.

#### AMERICAN COLLEGE OF CHEST PHYSICIANS

The annual meeting of this organization will be held at the Biltmore Hotel in New York City, June 8-10, with Dr. George Ornstein as General Chairman of the Scientific Program Committee.

For this meeting a program of scientific papers, clinics and roundtable luncheons has been provided. A group of excellent physicians will be on the program, men skilled in bronchoscopy, roentgen ray diagnosis, medicine, and surgery and so on. Details of the program may be obtained in the office of the Journal.

The twenty-fifth annual meeting of The American Association of Industrial Physicians and Surgeons, together with the first annual meeting of The American Industrial Hygiene Association will be held at Hotel Pennsylvania, New York City, June 4-7, 1940. Problems of industrial health in all of their various medical, technical, and hygienic phases, with particular stress on prevention and control of occupational hazards will be intensively discussed.

#### LOUISIANA GYNECOLOGICAL AND OBSTETRICAL SOCIETY

The annual meeting of the society took place in New Orleans on Saturday, April 20. A series of dry and operative clinics was given at Charity Hospital, following which scientific papers were presented at the Hutchinson Memorial Building. Among these was the presentation of Dr. D. I. Hirsch, of Monroe, on "An Unusual Gynecological

Experience"; Dr. Earl C. Smith, of New Orleans, had as his subject "The Clinical Management of the Climacteric and Menopause Syndrome"; Dr. W. F. Guerriero, of New Orleans, spoke on "Non-bloody Vaginal Discharges"; Dr. M. L. Stadiem, of New Orleans, spoke on "Inversion of the Bladder"; the last presentation was a motion picture in color, "Pregnancy Complicating Fibroids," by Dr. G. A. Mayer, of New Orleans. At the annual banquet, Dr. Wendell McL. Long, of Oklahoma City, delivered an address on "The Treatment of Carcinoma of the Cervix."

#### NEW ORLEANS ACADEMY OF SCIENCES

Section D: Medical Science, under the Chairmanship of Dr. Julius L. Wilson, met with the New Orleans Academy of Science, March 29-30, at their eighty-seventh annual meeting. On the program were the following: Dr. G. W. McCoy, who spoke on tularemia; Dr. W. A. Sodeman discussed the causes and prevention of heart disease; Drs. A. E. Casey and Branch J. Aymond presented a geographic distribution of poliomyelitis in Louisiana. The last speaker on the program was Dr. C. G. Collins, whose subject was entitled "Stilbestrol, a New Synthetic Estrogen."

#### NEWS ITEMS

Dr. Willard R. Wirth spoke on "Angina Pectoris and Coronary Thrombosis" before the Coast Counties Medical Society, Biloxi, Miss., March 6, 1940.

The National Gastroenterological Association will meet at the Hotel Roosevelt, New York City, June 4-6, 1940.

#### A. M. G. A. GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-sixth annual tournament at Winged Foot Club, Mamaroneck (Westchester County), New York, on Monday, June 10, 1940. Members may tee off from 7:30 a. m. to 2:00 p. m.

#### SOUTHEASTERN SECTION AMERICAN CONGRESS OF PHYSICAL THERAPY

Increasing interest in physical medicine throughout the South by physicians, hospital workers, nurses and technicians brings to the southeastern states the second annual gathering of the Southeastern Section of the American Congress of Physical Therapy. The success of last year's gathering brings also expanded activities in the form of a two day session which will be held May 20 and 21 at the Atlanta Biltmore Hotel, Atlanta, Georgia. The first day will be given over to an instructional seminar consisting of six important lectures on the more prominent subjects in physical medicine. On the evening of the same day the annual banquet will be held and following it the scientific program will be in-

augurated. The scientific program will continue throughout the second day, the evening's program conducted under the joint auspices of the Congress Section and the Fulton County Medical Society. While no fee will be charged for attendance at any of the scientific sessions, registration for the seminar will be \$2.00. Every effort has been made to bring together from various parts of the country leaders in the physical therapy field. This meeting should, therefore, prove of inestimable value to those interested in this newest science. General practitioners in particular should benefit from the seminar and the scientific presentations. Those contemplating registering for the seminar should do so by mail, if at all possible, remitting \$2.00 to Dr. Kenneth Phillips, secretary, 1150 S. W. 22 Street, Miami, Florida.

Among the evening speakers will be Drs. Earl C. Elkins, Consultant in Physical Medicine, Mayo Clinic, Rochester, Minnesota; John D. Currence, Assistant Clinical Professor of Medicine, New York Post-Graduate Medical School, Columbia University; N. H. Polmer, Professor of Physical Therapy, Graduate School, Louisiana State University Medical Center; Walter J. Zeiter, Director of Physical Therapy, Cleveland Clinic, and Edgar G. Ballenger, Atlanta, Georgia.

#### POST-CLINICAL CRUISE

The Post-clinical Cruise of the New Orleans Graduate Medical Assembly, which followed the fourth annual meeting, left New Orleans on Saturday, March 2, for a sixteen day cruise to Havana, Panama, Canal Zone and Honduras, on the American Flag Liner "Santa Marta." The members of the party were Dr. and Mrs. W. T. Andreskowski, Ryan, Oklahoma; Dr. S. R. Cozart, Greensboro, North Carolina; Dr. Miriam Drane, Memphis, Tennessee; Dr. William A. Fuqua, Grandfield, Oklahoma; Dr. and Mrs. Herbert L. Harvey, Casper, Wyoming; Dr. Clothilde Jauquet, New Orleans, Louisiana; Dr. Olafur W. Johnson, Rugby, North Dakota; Dr. Edward P. McGehee, Lake Village, Arkansas; Dr. A. S. Rider, Flandreau, South Dakota; Dr. Robert A. Robinson, New Orleans, Louisiana; Dr. and Mrs. David J. Rose, Goldsboro, North Carolina; Dr. and Mrs. Thomas B. Sellers, New Orleans, and Dr. Julius G. Thomas of Greensboro, North Carolina.

Dr. Sellers, Chairman of the Post-clinical Cruise, arranged for various members of the party to give talks aboard, these talks being followed by general discussions and medical motion pictures. In addition to the program on the boat visits were made to the outstanding hospitals in Havana and the Panama Canal Zone, as well as the United Fruit Company hospitals in Honduras.

#### ARMY EXPERIENCE FOR PHYSICIANS

An interesting medical corollary to the augmentation of the United States Army during 1940 and

1941 and to the planned large scale Army maneuvers during the spring and summer of 1940 is the broad medico-military experience which a great number of civilian physicians will receive. Medical Reserve officers are being used to augment the entire Army Medical Service, which includes everything from small unit installations to large Station Hospitals, General Hospitals, and hospitals designed primarily for the treatment of specific types of cases.

Physicians under 35 years of age who are desirous of obtaining extended active duty with the Army but who do not hold Reserve commissions are being offered appointments in the Medical Corps Reserve in the grade of 1st Lieutenant, in order to permit them to be placed on such duty. Captains and Lieutenants are at present being offered excellent assignments throughout the continental United States, and it is hoped that authority will be granted actually to permit some officers to go to Hawaii and Panama. In addition to having a new and very busy experience in the practice of medicine, the average officer finds the pay and allowances attractive. The pay and allowances for a married 1st Lieutenant amount to approximately \$263.00 a month; for a single 1st Lieutenant to approximately \$225.00 a month; for a married Captain to approximately \$316.00 a month; and for a single Captain to approximately \$278.00 a month. In most cases the above pay and allowances would apply inasmuch as Government quarters are not usually available for officers on extended active duty. In the few instances where Government quarters are available, the amounts would be \$40, \$60, \$60, and \$80 less per month respectively. In addition, the officer is reimbursed for mileage traveled from his home to his station, and upon completion of his tour of duty is reimbursed similarly for the travel to his home.

Application for one year of active duty, or for appointment in the Medical Corps Reserve with a view to obtaining one year of active duty with the Army, should be requested at once by a letter addressed to the Commanding General of the Fourth Corps Area, Atlanta, Ga. In addition, the application should contain concise information regarding permanent address, temporary address, number of dependents, earliest date available for active duty, and that internship has been (or will be) completed; and it should be accompanied by a report of physical examination recorded on the Army Form W.D. A.G.O. 63, which may be obtained from any Army station. From the group of Reserve officers placed on extended active duty since August, 1939, over 25 per cent of those within the age requirements of 32 years of age or less for commission in the Regular Army Medical Corps found military service sufficiently to their liking to cause them to take entrance examinations for the Regular Army.

## AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathologic examinations (Part II) for all candidates (Groups A and B) will be conducted at Atlantic City, N. J., from Friday, June 7, through Monday, June 10, 1940.

The annual dinner of the Board will be held in New York City on Wednesday evening, June 12, 1940, at the Hotel McAlpin. Diplomates certified at the preceding days' examination will be introduced personally, and there will be several speakers. All Diplomates of the Board, and others interested in the work of the Board, are cordially invited to attend this dinner.

## INFECTIOUS DISEASES IN LOUISIANA

For the week ending March 16, the following diseases were reported by the Bureau of Epidemiology of the Louisiana State Board of Health in numbers greater than ten: 99 cases of syphilis, 62 of influenza, 46 each of pneumonia and pulmonary tuberculosis, 30 of whooping cough, 26 of measles, 21 of cancer, 19 of chickenpox, 18 of gonorrhoea, and 14 of scarlet fever. The unusual infectious diseases reported this week included one case of smallpox in Avoyelles and one case of poliomyelitis in Orleans Parish (imported). The twelfth week of the year, which terminated March 23, showed a marked increase in the number of cases of syphilis, 197 being listed. There was a decrease in the number of influenza cases, 14 appearing as contrasted with 62 during the previous week. Other diseases included 56 cases of gonorrhoea, 39 of pneumonia, 30 of pulmonary tuberculosis, and 15 of scarlet fever. Four cases of undulant fever were reported from Orleans Parish and two of cerebrospinal meningitis. During the week closing March 30, in order of frequency were reported the following diseases: 81 cases of syphilis, 40 of pulmonary tuberculosis, 32 each of measles and pneumonia, 31 of influenza, 25 of whooping cough, 19 of scarlet fever, 17 of gonorrhoea, 15 of chickenpox, and 11 of cancer. A typhus fever case was found in Orleans Parish, with five cases of tularemia, three from Tensas and the other two from Iberville and West Baton Rouge. In the first week of the month, ending April 6, syphilis, as usual, was first in frequency with 110 cases; followed by 45 of influenza, 44 of pneumonia, 38 of gonorrhoea, 34 of measles, 31 of chickenpox, 23 of pulmonary tuberculosis, 13 of cancer, and 12 of scarlet fever. This week there were reported from Caddo Parish, under the more remarkable nomenclature, two cases of epidemic dysentery.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reported that for the week ending March 16, there were listed 194 deaths in the City of New Orleans as contrasted with 154 in the previous week. The deaths were divided 125 white, 69

colored and 16 infants under one year of age. For the week which closed March 23, the number of deaths fell about 44, there being 102 white deaths and 48 negro. The total number of deaths in children was 14, a most unusual fact being that the great majority was in white babies, 11 of whom succumbed. For the week which closed March 30, the 139 deaths in the city were apportioned as follows: white, 81; negro, 58; infants, 12, four white and 8 negro. For the week ending April 6, 145 citizens of this city expired, 95 of whom were in the white and 50 in the colored race. Infant mortality showed a total of 14 deaths, equally divided between the two races. It is rather interesting that so far this year, that is in the first fourteen weeks, there have been 472 more deaths in the city than in the year 1939; thirty-six of this increase were in children under one year of age.

PETER ERNEST MAGOUN, M. D.

(1883-1940)

In regular meeting April 11, 1940, at Ferriday, the Concordia-Catahoula Bi-parish Medical Society passed the following minute:

Whereas Divine Province has seen fit to remove from our midst our friend and co-worker, the Concordia-Catahoula Bi-parish Medical Society extends its love and regrets to his family, his friends and to the community whom he has so long and faithfully served.

Dr. Magoun was ever a valued member of our society from the time of its inception, and his absence from our meetings and from our lives will be deeply felt and earnestly regretted.

(Signed) N. L. Sebastian, M. D., Pres.  
John Schreiber, M. D., Sec.

JAMES BYRON VAUGHAN, M. D.

(1877-1940)

The many friends of Dr. James B. Vaughan were shocked to hear of his sudden death on April 14. Dr. Vaughan had been sick for a few days with an attack of asthma, a disorder from which he had suffered intermittently practically all his life. His death occurred suddenly, apparently as result of coronary occlusion. Dr. Vaughan for some years was the senior member of the Vaughan-Wright-Bendel Clinic in Monroe. He was already one of the prominent physicians in Monroe when the clinic was organized some few years ago. His breadth of vision and his keen diagnostic acumen helped to make possible the prompt success of this clinic.

Dr. Vaughan was born in Bastrop. He graduated from Tulane in 1901. For a short time he practiced outside of Monroe and then went to this city. He was always active in affairs of the State Medical Society, and in 1932 became one of the Councilors for his Congressional District. He was a man who thought clearly and his advice at the

Council meetings was sagacious and conservative. In his practice Dr. Vaughan was a beloved physician but it is not only his patients who gave to him their respect and admiration but also his colleagues valued him as a man and esteemed him as a friend.

---

### WOMAN'S AUXILIARY

#### Louisiana State Medical Society

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

---

### ANNUAL REPORT OF THE PRESIDENT

This year has been a very happy and busy one for me. Friendships have been made which I shall always cherish. I have had the most loyal and capable family to work with in the Officers, Chairmen and Councilors; and the Past Presidents, Mrs. Fred G. Ellis and Mrs. George Feldner, who came to my assistance with help and advice on many occasions.

My sincere thanks go also to our Advisory Council, Dr. John H. Musser, of New Orleans, and Paul D. Abramson, of Shreveport, and to Dr. Paul Talbot, Secretary of the State Medical Society.

Organization and unity have been our main objectives, for increased membership and harmony are vital to our work. With this idea in mind, I visited practically every Auxiliary in the state: Iberville; Caddo, to which Webster Parish was invited but unable to attend; Ouachita; Second District, comprising Jefferson, St. James, St. Charles and St. John; Lafayette; Rapides; Natchitoches; St. Landry; Terrebonne; Calcasieu, jointly with Jeff Davis and Beauregard; St. Tammany, jointly with Washington and Tangipahoa, and Lafourche, jointly with St. Mary. I was entertained so beautifully, and with such charming hospitality, that I must take this occasion, in behalf of the Auxiliary, to thank these hostess parishes.

Mrs. Erwin L. Gill, our active and competent Organization Chairman, also did some traveling, having covered fifteen hundred miles. She, with the help of our Councilors, organized Beauregard, Terrebonne and Webster parishes and laid the foundation for organization work in several other parishes.

Although we note, with sorrow, the loss of Sabine and Avoyelles parishes in the past year, due to great distances between towns and a very small membership, the three new Auxiliaries bring our number up to twenty organized parishes, and our membership, at the end of the fiscal year, to five hundred and eighty; a substantial gain over last year.

Immediately after taking office last spring, Councilors and Committee Chairmen were appointed.

On May 24, with a full number of delegates and alternates, your President attended the A. M. A. Convention in St. Louis. It was the most inspiring and helpful meeting and a yearly opportunity to all state presidents. This meeting was ably covered and reported by Mrs. Ellis.

On returning home, our program for the year was submitted to the State President, Dr. D. B. Barber, and our Advisory Council and approved by them; new stationery was printed and sent out to all Officers and Board Members; the names of Officers and Chairmen were sent to our State Society President, A. M. A., and Southern Auxiliaries; they were also published in the newspapers and in the September issue of the New Orleans Medical and Surgical Journal. Handbooks and National Bulletins were sent to each Auxiliary and outlines of their duties to the various Officers and Committee Chairmen.

The semi-annual Board Meeting was held on October 26, in New Orleans, with an attendance of twenty-seven.

In November, the S. M. A. Auxiliary meeting, in Lexington, Kentucky, was attended by a delegation from Louisiana, and the District Councilor, Mrs. W. R. Buffington, who reported the meeting.

Briefly summarizing the work of the year,—the various Auxiliaries have held well attended and enthusiastic meetings. All have canvassed their membership to have periodic health examinations and received practically one hundred per cent cooperation. The Auxiliaries have worked with the doctors on anti-tuberculosis and anti-cancer campaigns, and have sponsored various individual philanthropic enterprises including aid to indigent physicians' widows, Red Cross, eye glasses for needy children, layettes, aid for crippled and tubercular children, and other worthy causes too numerous to mention.

The President-elect, Mrs. Roy Carl Young, and four Vice-Presidents, Mrs. H. O. Barker, Mrs. Clifford U. Johnson, Mrs. W. P. Bordelon and Mrs. T. Everett Strain, have been cooperative in organization work throughout the year.

The Recording Secretary, Mrs. Edward C. Melton, has been present at both Executive Board Meetings, taking minutes and duly recording them.

The Corresponding Secretary, Mrs. Charles R. Hume, has sent out notices of Board Meetings, cards to Delegates and Alternates, and has written approximately two hundred and fifty letters. I think the Auxiliary, as a whole, as well as myself, personally, appreciates this enormous amount of work and time so cheerfully given.

Our Treasurer, Mrs. W. R. Buffington, reports total receipts: \$549.02; total disbursements, \$380.27; leaving a balance on hand of \$168.75.

Twelve Auxiliaries reported to the Chairman, Mrs. W. A. Ellender, that they had celebrated Doctors' Day with newspaper editorials, flowers to the doctors, dinners, suppers, and banquets in their honor, greeting cards, and donations to worthy causes given in their memory.

Mrs. M. C. Wiginton, Exhibit Chairman, has asked each Parish Auxiliary to exhibit at the State Convention. She has made a wonderful poster for National, bringing out the major projects of the Auxiliary and also typifying the unity that prevails between the Medical Society and the Auxiliary.

Our able Chairman of Press and Publicity, Mrs. Edgar Burns, reports publicity given to our state appointments in the Medical Journal and newspapers. The Journal has printed reports of the State, A. M. A., and the Southern meetings, also lists of their Officers; various local Auxiliary news items; report of the National Legislative Chairman, Mrs. A. A. Herold, of Shreveport; report of educational work in regard to tuberculosis by Mrs. H. B. Gessner, of the Orleans Parish Auxiliary. In regard to public relations, a letter was sent to the Presidents of all Parish Auxiliaries, urging them to hold open meetings, inviting outside guests when the subject of state medicine would be discussed by a doctor qualified to do so; suggestion made by State President, and letter by Mrs. F. Creighton Shute, Public Relations Chairman. Her news columns in the Journal have helped bring us closer together and have stimulated interest.

May we take this opportunity to thank the Editors of the New Orleans Medical and Surgical Journal for allowing us space each month?

Our Finance Chairman, Mrs. H. W. Kostmayer, has an interesting report. A larger reserve fund this year, plus a balance from my budget, allows her more margin in planning our expenditures for next year.

Mrs. Joseph Bath, Historian, has our beautiful History Scrapbook up to date.

Hygeia Chairman, Mrs. A. G. McHenry, reports seventy-eight subscriptions to Hygeia. Honorable mention was given Iberville and Washington parishes, among those who had reached or gone over their quota in the National Hygeia Contest.

Hygeia has been put in schools, doctors' offices and libraries. Auxiliaries have sponsored school essay contests with subjects taken from Hygeia.

Mrs. Hermann B. Gessner, Chairman of Printing and Supplies, is responsible for the stationery and very attractive and complete Year Book, tangible evidences of her work. The Year Books were mailed to the membership for the first time this year.

Mrs. D. C. McBride, Chairman of Indigent Physicians' Fund, reports two donations to this fund: five dollars from Rapides Parish and five dollars from Calcasieu.

Mrs. T. H. Watkins, Program Chairman, reports sending program suggestions from National to all the Auxiliaries; these suggestions to be passed on by Auxiliary Presidents to Program Chairmen to help them plan programs for each meeting during the year. She also called attention of all members, through each President, to radio broadcasts of "Medicine in the News." Bulletins forwarded from National, calling attention to the meeting of the A. M. A. Auxiliary in June, in New York City, were likewise sent in.

Public Relations work has grown and each Auxiliary is beginning to realize that real work is necessary if the lay public is to be kept informed on subjects vitally interesting to their welfare from the health standpoint. Cooperating with the National Legislative Chairman, the Public Relations Chairman, Mrs. F. Creighton Shute, has undertaken to present to the women of the Auxiliary, for study, the present conditions in regard to socialized medicine. Many of our prominent doctors have given lecture courses on the subject to Auxiliary members, and talks sponsored by Auxiliaries to lay groups.

Mrs. F. Creighton Shute, Public Relations Chairman, sent the various Auxiliaries objectives offered for special consideration during 1939-40, as follows:

1. To acquaint the public with means of acquiring authentic information on health:
  - a. To present the attitude and aims of the A. M. A. on national health issues.

Twelve parishes were active in public relations: two held essay contests on health subjects in schools; six publicized radio health programs; four medical speakers' bureaus; eight disseminated literature on health education; five had clipping files of newspaper and magazine articles on questions pertaining to the medical profession; three had book reviews on health education; seven had public relation programs for lay groups as outlined in the national program. Efforts were centered on explaining the attitude and aims of the A. M. A. toward the Wagner Health Bill.

As the doctors have not asked us to participate in any legislative matters, Mrs. Clarence Lorio, Chairman, has no report. However, every Aux-

iliary has stressed having each member a qualified voter.

At our last State Meeting, Past Presidents' pins, and a President's pin, to be worn while in office and then passed on to her successor, were decided upon.

So, now it becomes my duty and pleasure to present this pin to Mrs. Young with my best wishes for continued success in furthering the high ideals and ambitions of our splendid organization.

(Signed) Mrs. S. M. Blackshear, President.

#### A. M. A. CONVENTION

A last reminder to make your reservation for the eighteenth annual convention of the Woman's Auxiliary to the American Medical Association to be held at the Hotel Pennsylvania, New York City, June 10-14, 1940. New York has much to offer aside from the convention and we are sure you will not want to miss the opportunity of visiting New York this year.

Respectfully submitted,

Mrs. Edgar Burns,  
Press and Publicity Chairman.

---

## BOOK REVIEWS

*Your Community, Its Provisions for Health, Education, Safety, and Welfare:* By Joanna C. Colcord, Director of the Charity Organization Department of the Russell Sage Foundation. New York, Russell Sage Foundation, 1939. Pp. 249. Price \$.85.

A guide for the study of community resources to determine what facilities are available for the promotion and maintenance of health, education, safety, and welfare. It was prepared for use primarily by members of civic and educational clubs and associations or for high school and university students. It is not intended for technical surveys but to enable intelligent citizens to obtain a well rounded picture of their community. In the author's own words, "The book outlines a descriptive and not an evaluative study. It is realized that intelligent people must inevitably form judgments about what they see and learn; but asking definite questions about adequacy or efficiency of operation has been avoided. In order to appraise performance, it would be necessary to have comprehensive knowledge, first, of the various standards of excellence that have been developed in any given field, and second, of how far those standards have been found practicable and applicable in other communities of the same or similar size. When standards are available in published form, reference has been made to them so that the inquirer who wishes to take the initial steps in evaluation can have some base-lines from which to proceed. An evaluative study ought not to be undertaken, however, without the close direction of a person trained and competent to make community studies in specialized fields." Its purpose is to reveal gaps and uncovered areas in community equipment, health and welfare needs of a community with which no existing agency seems prepared to deal or overlapping without clear delimitation of function between agencies.

The areas covered are provisions for dealing with crime; public safety; workers, wages, and conditions of employment; housing, planning, and zoning; health care, handicapped; education;

recreation; religious agencies; public assistance; family welfare; child care; foreign-born and racial groups; clubs and associations; agencies for community planning and coordination. In addition to a comprehensive list of references, there is a list of agencies and associations, largely national in scope, which are interested in the various fields and which would be able to furnish pertinent material to those undertaking a study of any of these community services.

In each chapter the outlines are broken down into groups of questions covering the various topics, giving sources from which information might be obtained and referring the inquirers to references on these points. Each outline is preceded by a brief, general explanation of important points to be covered and factors involved. Suggestions are given for the organization and use of material. The material is set up with cross references to related subjects so that a single chapter may be used when the inquiry is restricted to a single phase of community life. The questions are designed to cover what services are found in the best equipped communities but they must be applied to the practical setting of the community in which the study is to be made.

Of special interest in the medical field are the three chapters covering provisions for health care, distribution of health care and provisions for the handicapped. For a study of the provisions of medical care, the outline includes questions on the water supply, sewage and refuse disposal, the smoke nuisance, milk and food supply; mortality and morbidity rates; medical personnel, hospital facilities, outpatient facilities and the public health authority; services to mothers and infants, school children and persons having communicable or non-communicable diseases; aids in planning the community's health program; agencies for and methods of informing the public about health.

The questions are specific and clearly stated and should greatly facilitate the study of community services in any of the areas covered. Intelligently used, it is of considerable value in directing efforts

of this kind along constructive lines. The author is clearly conscious of the limitations within which these outlines should be used and endeavors throughout the book to present the material so that it will be used as it is intended. One might question the wisdom of setting up outlines for studies of this type for the use of the "intelligent citizen" on the ground that it encourages him to inquire into things about which he knows nothing. However, since it is the citizen who finances and, in a large measure, participates in the planning of community services, should he not be informed on accepted standards and the facts within his own community so that his activity in these community matters may be intelligent? Civic groups will and should inquire into the provisions for community services. It is essential, therefore, that a sound guide for these inquirers be available for their use. Miss Colcord has made a real contribution in providing such a guide.

JULIA MAE MAGRUDER.

*Whence, Whither, Why:* By Augusta Gaskell. New York, G. P. Putnam and Sons, 1939. Pp. 312. Price \$2.50.

The reader of this book should have a comprehensive knowledge of the physical sciences, the biologic sciences, the social sciences, the world religions, and the thoughts and conclusions of the past and present philosophers. Perhaps it should be stated that this volume is best studied and not read.

Ever since man has existed as a thinking being he has had a longing to understand himself, the universe in which he lives, his universe as contemporaneously known and its relation to that universe. Philosophers have attempted to answer many questions on the basis of factual knowledge whenever possible, but where factual knowledge was either inadequate or lacking, then an explanation was attempted on the basis of intuition, faith and mysticism.

As factual knowledge has increased, particularly during the last few centuries in the physical and biologic sciences as a result of scientific research, a very few of these questions have been answered satisfactorily. Although many new facts have been accumulated and integrated into hypotheses and theories, many fundamental questions remain unanswered.

The reader who will approach this book with an open mind will find it interesting and stimulating. The author deliberately tries to avoid being dogmatic. This book is valuable as the record of an individual who is sincere in her search for truth. She is both a realist and an idealist; a realist in that in the formation of her philosophy she starts with present day knowledge in its various branches; an idealist in that she does not hesitate to draw conclusions that are far beyond factual scientific knowledge.

A single sentence on page one of the book gives, by inference, the tone of the whole volume: "Ultimately, every thinking man has his own philosophy, which, however, rarely is the result of his own thinking, but generally is found by him ready-made; the one most convenient to him, which he adopts and parades much as he does a suit of ready-made clothes."

Such a work should be kept close at hand, reading a page or two, or a paragraph as the opportunity presents itself. Browse about in it to compose your mind at night and to arouse it in the morning. It gives ferments rather than recipes and requires study to extract the seeds of thought contained within. To the inquiry as to the value of such a volume, I would reply taste it, try it for yourself.

WARREN H. HÉBERT, M. D.

*Cancer of the Larynx:* By Chevalier Jackson, M. D., Sc. D., LL. D., F. A. C. S., and Chevalier L. Jackson, A. B., M. D., M. Sc. (Med.), F. A. C. S. Philadelphia and London, W. B. Saunders Company, 1939. Pp. 309. Price \$8.00.

This beautifully illustrated and well written volume of 309 pages presents the considered experience of the Jacksons, father and son, with cancer of the larynx. It is worthy of careful study by any laryngologist or surgeon concerned with the care of patients with cancer of the larynx. It is an invaluable source of information to those of us on whom devolves the responsibility of making an early diagnosis of cancer of the larynx. On this early diagnosis rests not only the victim's opportunity to be relieved of his malady but also the magnitude of the surgical undertaking to that end. The patient with an early cancer of the vocal cord can have his cancer out and his larynx saved by laryngo-fissure. The patient with more advanced but still intrinsic cancer, may yet be saved by laryngectomy, but with the loss of his larynx. The patient with more advanced laryngeal malignancy is doomed to palliative treatment and death in its rudest form. And this death could have been avoided if diagnosis and appropriate treatment had been instituted at the proper time.

In these pages the Jacksons tell us what to do and when to do it. Diagnosis, laryngo-fissure, laryngectomy in its various technics notably the narrow field operation, radiation and the unfortunately too often required palliative treatment, are all thoroughly covered.

An extensive and very interesting section is devoted to the history of the treatment of laryngeal malignancy.

H. L. KEARNEY, M. D.

*Diseases of the Foot:* By Emil D. W. Hauser, M. S., M. D. Philadelphia and London, W. B. Saunders Company, 1939. Pp. 472. Price \$6.00.

Dr. Hauser has undertaken a comprehensive

review of all types of foot troubles for the benefit of the student, general practitioner and orthopedic surgeon. The opening chapters on anatomy, embryology and physiology, which are both interesting and instructive, form a medical background for a review of the diseases and injuries of the feet which follow. Whereas the chapter on examination of the feet is very good, it would be more complete if it included a discussion of gait and placement of the feet.

The succeeding chapters on the foot of the growing child, pes valgoplanus, the treatment of orthopedic conditions of the toes, accessory bones of the foot and disturbances of the heel present a clear conception of the author's analysis of these conditions and his plan of treatment. Other forms of therapy are not discussed, but occasionally the author condemns certain lines of treatment. The bibliographies which are appended to each chapter cover certain articles and texts dealing with other recognized treatment of similar conditions but are not at all complete.

In his effort to make this text a comprehensive review of all diseases and injuries affecting the feet, the author has included chapters on arthritis, the various deformities associated with infantile paralysis, club feet, acute and chronic pyogenic infections, bone tumors, skin diseases and fractures and dislocations. The chapters on congenital deformity, infantile paralysis, fractures and dislocations, pyogenic infections and tumors could have been omitted without detracting from the book since they cannot be complete enough to supply sufficient information on these subjects. The student and practitioner alike who would acquaint himself adequately with these subjects must necessarily search elsewhere in articles and texts on orthopedics and on fractures.

The book, which is clearly written and well illustrated, is a valuable addition to the subject of diseases of the foot only in so far as it represents the author's analysis and treatment of these conditions.

GUY A. CALDWELL, M. D.

*Endocrine Gynecology*: By E. C. Hamblen, B. S., M. D., F. A. C. S. Springfield, Ill., Charles C. Thomas, 1939. Pp. 453. Price \$5.50.

This monograph is extremely well written. The illustrations are excellent, the bibliography voluminous, and the index very complete as to author and subject matter. The author has divided his monograph into three parts. In part one, he fully discusses all the hormones of the glands of internal secretion, special emphasis being placed upon the sex hormones of the pituitary and ovary.

In part two, the physiology of menstruation, abnormal bleeding, puberty, and the menopause are

discussed in detail and in a style which is extremely clear.

In part three, the diagnostic procedures used in endocrine gynecology are presented and then evaluated fully. In this section disturbances of the glands of internal secretion in the female, the treatment of these disturbances, and results obtained by treatment are discussed fully.

This volume is so replete with the author's personal experience and the results of his extensive investigative work that it is heartily recommended to all medical men.

CONRAD G. COLLINS, M. D.

*Non-profit Hospital Service Plans*: By C. Rufus Rorem, Ph. D., C. P. A. Chicago, American Hospital Association, 1940. Pp. 130.

This is an authoritative publication on non-profit hospital service plans by one who is fully acquainted with the subject. It should be of particular interest to those physicians who are interested in the economics of hospital administration.

J. H. MUSSER, M. D.

#### PUBLICATIONS RECEIVED

Columbia University Press, New York City: *Directory of Medical Specialists, 1939*, Paul Titus, Directing Editor, and J. Stewart Rodman, Associate Editor.

The Commonwealth Fund, New York City: *Essentials of the Diagnostic Examination*, by John B. Youmans, M. D.

F. A. Davis Company, Philadelphia: *Diabetes, Practical Suggestions for Doctor and Patient*, by Edward L. Bortz, A. B., M. D., F. A. C. P.

S. B. Debour, Chicago: *Gynecologic Operations*, by Prof Dr. Med. Heinrich Martius.

Lea & Febiger, Philadelphia: *The Pathology of Internal Diseases*, by William Boyd, M. D., LL. D., M. R. C. P., Ed., F. R. C. P., Lond., Dipl., Psych., F. R. C. S. *Artificial Pneumothorax*, contribution by Saranac Lake physicians to the students of the Trudeau Foundation, Edward N. Packard, M. D., John N. Hayes, M. D., Sidney F. Blanchet, M. D., editorial committee. *Arthritis and Allied Conditions*, by Bernard I. Comroe, A. B., M. D., F. A. C. P. *Clinical Toxicology*, by Clinton H. Thienes, M. D., Ph. D. *The Electrocardiogram and X-ray Configuration of the Heart*, by Arthur M. Master, B. S., M. D., F. A. C. P.

Charles C. Thomas, Springfield, Illinois: *Dermatologic Allergy*, by Marion B. Sulzberger, M. D.



# New Orleans Medical

and

# Surgical Journal

Vol. 92

JUNE, 1940

No. 12

## INAUGURAL ADDRESS\*

C. GRENES COLE, M. D.

NEW ORLEANS

As you well know, this meeting is fittingly dedicated to our beloved and own Dr. Rudolph Matas, declared by the House of Delegates of the American Medical Association in June, 1938, to be America's most distinguished medical man and to be the first one to receive the distinguished service medal for "meritorious service in the science and art of medicine", an award given annually by the American Medical Association to the most worthy member of the medical profession.

The members of this society congratulate Dr. Matas and consider the American Medical Association fortunate to have had the privilege of conferring such an honor on such a distinguished individual with so many outstanding medical achievements, and the medical profession of Louisiana share in his glory and can only say that we are profoundly proud that our own great surgeon has been declared by a representative of every state in the union, to be, what we have always known him to be, the outstanding medical man in this country. Dr. Matas we salute you!

I appreciate very much the honor conferred upon me in my election as President of the Society. As I enter upon the discharge of my duties, I am mindful of my limitations and I shall rely largely upon

your counsel and friendly suggestion. Of the cardinal virtues, faith, hope and charity, I believe I can claim the first as my own. As your President, I shall use largely this faith of mine in the hope that you will exercise your charity as to any shortcomings you may discover.

I would like, at the outset, to extend my congratulations to our outgoing President for his accomplishments.

It is quite a pleasure, I assure you, to have been elected president of this organization. I feel sure you have not elected me for what I have done in the past but for what you expect me to do in the future. I am happy as you can see and yet in the sunshine of happiness there comes a ray of seriousness, for I well realize that with this position, as with all duties of trust, there comes an obligation. I am sure the duties and responsibilities will be great, and, as I see it, I cannot possibly bear this burden alone. Therefore, I am now appealing to you, each and every member, for help and support. Even as Aaron of old held up Moses' hands, so do I expect you to hold up mine.

We want to practice the golden rule in our society as much as possible. However, we should not be satisfied with merely doing unto others as we would have them do unto us, or living to let live, but may we as a society live to help others live. If we apply this axiom to our own lives by putting our house in order first, then we will be able better to help our city, country, state or nation in a more ideal way.

As you know, our society is built on service—service to home, service to man,

\*Read before the sixty-first annual meeting of the Louisiana State Medical Society, April 23, 1940.

and service to God. In carrying out these ideals of service to ourselves and one another, we unconsciously become one common happy family working for a common worthy cause.

We are engaged in worth while achievements. Our society has definite purposes and ideals. We have visions of accomplishments; and vision has ever been the guiding angel of mankind. Throughout history, it has always been the man of vision who has led. No progress has ever been made without it, and a nation's greatest assets are its men of vision, whether educators, statesmen, inventors, physicians or individualists.

Higher is a word of noble import. It is an impulse of tremendous lifting power. It lifts the soul of man from low and groveling pursuits to the achievements of high and great purposes.

Nothing else will so surely save one from failure as a complete surrender to a passion for excellence—to a lofty ideal. This is the steam engine. It is the pilot at the wheel.

Darwin's suggestion as to the evolution of the eagle is an instructive one. The desire to ascend was there before the wings, and through countless ages of development the process of formation and adaptation went on, until at last with mighty pinions the eagle soared aloft toward the sun.

Of this it may be said that every well meant trial and intention and effort is part of a great process. Each starts some feather and develops some muscle in the eagle's wing. It is he who aspires highly who highly achieves.

We must not spend our days waiting for an angel to deliver realized hopes at our door. We must go out and toil for them. I believe that the members of this society can help to bring better things to pass for our communities and for our state.

A boy once came to his father with some schoolwork that was proving to be too difficult for him to master. The father sent him back to try again. Later, going into his son's room to see how he was progressing, the father noticed some drops of water on the paper on which the boy was

working. "What are these," asked the father, "Tears?" "No," replied the boy, "It's sweat!" We understand that we are not here to cry about the things we want accomplished but to work and even to sweat for them.

In each generation some of the best minds have devoted themselves to the study of the healing art. This will always be so. There is an allure to the practice of medicine which keeps the conscientious physician struggling on for his patient in the face of any difficulty. I like to believe that it is an inherent love of human kindness, which makes life's ultimate goal the universal brotherhood of man.

The practice of medicine has its origin in the far distant past. Primitive man, the ancient ancestor of the present generation, was a savage who roamed the earth, ignorant of the phenomena of his existence or of his surroundings. Fear of death was uppermost in his mind. He feared his fellow man, the wild beasts that inhabited the mighty forests, and fled in terror from such natural phenomena as thunder and lightning. He attributed all of his misfortunes, including disease, to evil spirits that in his imagination peopled the air about him. To protect himself from these evil spirits, he invented good spirits, charms, and mystic rites. In due time some one member of the clan or tribe appeared to be more successful than others in combating these evil influences. This man became the magician or medicine man of the clan. He was the progenitor of the physician.

Later, as primitive man became more enamored with the idea of good spirits aiding him in his fight against the evil ones, this medicine man became a priest who served the good spirits of the gods. Religion was therefore added to the practice of medicine. The origin of medicine was, therefore, mysticism, magic and religion. Primitive man believed that spirits inhabited all animate and inanimate objects. Some of these objects he thought contained good spirits, hence certain herbs and parts of certain animals were given to the patient in order that the good spirits

might enter into their bodies and drive out the evil ones that were causing disease.

As man's intelligence gradually increased in his desire better to protect himself from disease and its sequence, death, there were manifested other additions to this early art of medicine; namely, astrology and the science of numbers which were thought to influence his health. The numbers four, seven and thirteen were considered of especial importance. The rays of light from Luna, the moon, under certain conditions, were supposed to produce insanity, hence the designation "lunatic" was applied to an insane person. From these old beliefs we of the present generation have inherited superstition, such as belief that a child born at seven months was more likely to live than one born at eight months. Throughout many ages, the art of medicine was a mixture of religion, mysticism and magic.

About four hundred years before the birth of Christ there lived in Greece a physician whose name was Hippocrates. He became the greatest physician of his age. He was the first to recognize the error of mysticism, magic and religion in medicine. He taught that disease was cured by the natural powers of the body. He practiced bedside observation of symptoms, examined the secretions of the body, and investigated the digestibility of various foods. He established the practice of medicine on a rational basis. He also composed a code of ethics to govern the conduct of physicians. He declared that the true physician must be a man of honor, true to himself, and honorable in his dealing with all men. This ancient code is the basis for the present code of ethics that is in use today by the medical profession. In this day of many codes, we of the medical profession can point with pride to this ancient code of ours that has been a lamp to guide the members of our profession throughout all the centuries of the past.

Gradually the science of medicine progressed until today we find not a finished product but a system that has reduced the incidence of disease to a point that is noth-

ing short of miraculous. The death rate from disease has dropped to 9.6 per 1,000, and nearly twenty years has been added to man's age expectancy. The number of newborn infants that may reasonably expect to reach maturity has been vastly increased. Trench after trench of man's great enemy, entrenched disease, has been taken in our war on that dread enemy of the human race. There remains much more to be done before disease will be under control.

During all of these centuries past, the physician has never faltered in his endeavor to serve suffering humanity.

The changing economic and social conditions present no less a challenge to the medical man than to the business man, the agriculturist and the industrialist. The Social Security Act brings additional responsibility to an already overburdened profession. This is a responsibility one cannot dodge if the public health and maternal and child welfare sections of the act are to be made workable for the best interests of the public and the profession. The spectre of national health insurance or socialized medicine will not down.

Many other problems of importance will arise from time to time, and we must be prepared to lend our assistance to their solution. The United States Public Health Service is now making an intensive fight on syphilis, and already we have been called upon to give our support. The American Society for the Control of Cancer has recently launched a campaign to enlist women of the United States in a Women's Field Army to combat cancer.

One need not qualify as a prophet, to be able to predict that, if the public health agencies, both national and state, would take the practicing physicians, who so nobly have taken care of the public, both rich and poor for these many centuries past, into their confidence, I am sure that by the mutual cooperation of both, the medical profession will go forward to a new high in service to the public.

With many new responsibilities and opportunities presented to the profession, let

us be prepared to give a good account of ourselves.

There is no doubt that the wise physician continues to study throughout his entire life. He budgets his time for reading, for the stimulation resulting from medical society meetings, for the investigation of puzzling problems and the writing of essays. Unless these four are combined some side of his professional fullness of life will be neglected and he will, in some way, restrict his field of usefulness.

The wise physician joins his county or parish society and regularly attends its meetings. At first, he is instructed but soon he assumes the role of instructor. He goes to his district branch meetings to widen his horizon of medical perspective. By active interest in the State Society he takes his logical place as a leader as soon as his skill is demonstrated, which may be by papers, by discussions, by scientific exhibits or participation in the postgraduate instruction courses. The State Society offers an open forum for the advancement of medical thought not only in these ways but also in its journal. With your help our journal can be made one of the most important reservoirs of current medical thought. To each and to every one of our state activities, I urge your attention and invite your active interest.

The American Medical Association meetings should be attended whenever possible. The addresses and scientific exhibits are the finest in the country and merit the careful consideration of all physicians. I ask your serious consideration of all phases of the American Medical Association activities.

The successful physician must be taught early in his life that in the knowledge of health and sickness is the power to care for the well and cure the sick. He must have an inquiring disposition, a retentive memory, and an inherent and trained ability to use all of his special senses to become a wise counsellor.

Perhaps your great-great-grandfather was a doctor, but he never attended a medical school. He was a blacksmith who bled

people and pulled teeth. Perhaps your great-grandfather was a doctor and graduated from a Class A School in 1821. He bled and he blistered and he puked and he purged—and this was about his armamentarium. He did not even have ether or chloroform.

Perhaps your grandfather was a doctor and graduated from a Class A school in 1857. Bacteria were unknown. His appendicitis patients died of "cramp colic" and "locked bowels." He did not know that tuberculosis was communicable. He did not have a fever thermometer.

Perhaps your father was a doctor and graduated from a Class A Medical School in 1884. Diphtheria was rampant and deadly, and so was typhoid fever. He did not have vaccines for them, nor thyroid extract, nor adrenalin, nor pituitrin. Blood transfusion was unknown. He did not even have an x-ray. Radium had not been discovered. He did not have local anesthetics. He could not take a blood pressure. Pathologic and clinical microscopy were just beginning. He did not know that yellow fever was transmitted by mosquitoes, nor had he heard of hookworm.

Perhaps you as a doctor graduated from a Class A School in 1900. You did not even have insulin for diabetes, nor liver extract for pernicious anemia, nor scarlet fever serum, nor the malarial treatment for paresis, nor a host of other things. Insulin and liver extract, for instance, are both veritable epics in man's struggle against disease. The public, fed on mass production, wants an epic a week at least.

The time has come when the public should be informed regarding the qualifications of those who claim to be specialists in any department of medicine.

We are living in an age where the established order is being subjected to a critical examination in the crucible of economic unrest; when those untrained by experience and unqualified by mental inaptness render opinions obviously incompetent on one side and biased on the other.

Surely it is a sorry state of affairs when things pertaining to the actual practice of

medicine are left to those who have never had any contact with the sick except as statisticians and readers. When the rules or laws governing the health of the state are promulgated by those not associated in any way with the delivery of medical service, it is time for organized medicine to rebel.

On the air and in the press the self-appointed parade back and forth on the stage of medical service, first in one role and then in another but always cast in fanciful forms against the present day methods of practice. It is high time that we, the organized profession of the state, known to all as a most humane and honorable body protest against the activities of public servants preaching against us individually and collectively. Let us make a determined stand against all health agencies which capitalize illness and raise false standards of past and future achievements of medicine for their own advancement.

Let us break the chain of governmental usurpation of medical power which grew as an automatic process, one step leading to another until either by design or by chance we have arrived at the place where for the good of the people of this country we must rend it, for once it is broken the pernicious life-taking procedure will stop.

The rules for professional conduct are the basis of all our relationships with patients and physicians but morals begin with individuals and not societies. When the sense of right is once obtunded it always remains weakened. Getting money under false pretenses, fee splitting, almost always reduces the effectiveness of the recipient. Our regulations have been conceived and are enforced for the application of the all embracing golden rule to do unto others as you would have others do unto you. When everything seems to be doing badly, when pinched by necessity and shrouded in the darkness of adversity, the tempter appears with a demand for an improper operation, an untrue witness statement, a false affidavit or a divided fee. There is nothing which so destroys moral fiber and physical power as leading a dual existence.

One cannot serve the god of medicine and the idol of ill-gotten gain at the same time for inevitably the influence of the latter controls action. We know that there are very few moral delinquents in our ranks but those few bring discredit upon the entire group and they should either give up their evil ways or get out of the society.

We the organized profession of the state are vitally concerned about anything which tends to reduce our efficiency. If we follow these precepts we will indeed be prepared physicians not only to care for the sick and to prevent illness but also to withstand the attacks of those who wish to make physicians mere servants and the public weak supplicants.

Recently an old ghost has reappeared in a new garb. I refer to so-called medical reviews, advertising journals and drug house reprints. Most of these are unethical. Do not keep them alive by allowing your good work, your success, to reach the profession through such channels.

Let us reconsecrate ourselves to the cause of medicine and rally to the saving standards of our rules of professional conduct.

Upon each and every one rest these obligations. We cannot, we must not falter in either for if we do an overwhelming catastrophe will overtake the practice of medicine and the protection it gives the public. Our responsibilities are many, our opportunities numerous and our heritage of medical example too sacred to be denied.

I am strong in my faith and firm in my convictions that organized medicine through the individual will meet the high professional standard and ethical plane for which I hope and you desire.

It was Osler who said to a group of students entering Johns Hopkins: "If you look forward to a lucrative practice, go home. If you enter medicine in exactly the same spirit that the missionary leaves for his foreign field, that is, believing that in medicine you best can use your talents for your fellow men, we welcome you."

In this day and age it is too much to expect doctors to have so fine a missionary

spirit as to be totally indifferent to money and the comforts and security it can buy. But it may still be assumed that a doctor who is worthy of the name will find his greatest reward in the satisfaction he derives from pursuing a science and from improving the lot of humanity. The fact that many doctors have placed these satisfactions first justifies the conclusion that this is not an impossible human ideal.

The majority of the medical profession are no doubt doing all that they can to raise the standards of medical practice. If there is a tinge of despair among some of the leaders, it is because the young men who are coming up, no matter how carefully they are selected from the thousands who apply for admission to the medical colleges, so often lack a medical conscience. The colleges are fully aware of the situation and are bending every effort to graduate only those students who are both mentally and morally fortified to practice medicine. But they can do no more than that. The future of the medical profession, in fact, depends upon the future of American manhood. If more parents teach their children, as they do today, that material success, rather than devotion to some science or art, is the end and aim of life, then we shall have fewer and fewer doctors who follow in the footsteps of Hippocrates and practice their art for the benefit of the sick.

Some of my hopes are:

1. That the renewed spirit of scientific service and medical self-instruction shall continue to develop;
2. That our medical colleges, because of this new spirit, may soon be enabled to have a cooperation of effort from the profession that will permit them to enlarge their post-graduate courses, in order that they might give fuller practical educational courses to those practitioners desiring them; and
3. That our members may in larger numbers avail themselves of the scientific and educational benefits offered by the society and ultimately become a profession, not only thoroughly and practically educated in modern scientific methods, but

that, through the years, will continue to be up to date and fully competent and which, because of scientific training and special skill, will always be ready to serve, not only its own individual clientèle, but to render a larger service to the growing demands of an ever changing civilization.

May I say to you again, in concluding my remarks, that I am grateful for your undeserved honor and confidence.

When my life-work ceases, and my experiences are ended, I would ask for no better name than that of a humble physician, who here and there from the shore-points of life's ocean, has sent out a friendly beam, to brighten the darkness of someone's night, or to extend a helping hand in removing disease and suffering from the lives of humanity.

---

#### MEMORIAL ADDRESS\*

J. P. MAUBOULES, M. D.

RAYNE, LA.

Fellow confrères of the Louisiana State Medical Society: Life, as we know, is very short and uncertain; therefore, we should be prepared at all times to meet the end. It reminds me of rainbows, coming from the earth, going up towards the sky, then curving again back to the earth. Some are very short, some are long and others much longer, and so is life.

When Dr. Couvillon, at our last meeting said, "O come and mourn with me a while," at that time no one but God knew that his name would be read at this meeting as one who had departed from this earth.

I believe all human beings on this earth should have a creed or faith in some religion; he who has none, in my opinion, could be compared to a man in a leaky boat in the middle of a deep sea.

Please stand with me as I read the names of our confrères who died during the past year:

Jackson J. Ayo, Jackson.

---

\*Read before the sixty-first annual meeting of the Louisiana State Medical Society, April 22, 1940.

George S. Bel, New Orleans.  
 George R. Beridon, Opelousas.  
 William P. Buck, Jr., Kinder.  
 Arthur R. Carter, Mount Hermon.  
 Enoch McL. Causey, Franklinton.  
 Nash Collins, Delhi.  
 S. J. Couvillon, Moreauville.  
 John W. Craig, Many.  
 Harper L. Crow, Bossier City.  
 Francis O. Darby, Baton Rouge.  
 Leonhard E. Devron, New Orleans.  
 D. N. Foster, Franklin.  
 George R. Fox, Algiers.  
 Maurice J. Gelpi, New Orleans,  
 L. W. Holloman, Marksville.  
 J.-E. Isaacson, New Orleans.  
 Robert C. Kemp, Baton Rouge.  
 Wilkes H. Knolle, New Orleans.  
 P. E. Magoun, Vidalia.  
 L. A. Masterson, New Orleans.  
 D. S. Perkins, Sulphur.  
 T. J. Perkins, Simmesport.  
 John L. Pittman, Palmetto.  
 J. Numa Roussel, New Orleans.  
 Amédée B. Granger, New Orleans.  
 James C. Sartor, Rayville.  
 E. E. Simpson, Shreveport.  
 Joseph E. Slicer, Shreveport.  
 Jacob A. Storck, New Orleans.  
 O. H. Thompson, Marion.  
 J. B. Vaughan, Monroe.  
 F. H. Walke, Shreveport.  
 David L. Watson, New Orleans.  
 Arthur Weber, New Orleans.  
 J. C. Wilkins, Bastrop.

May their departure from this earth give them eternal rest and peace in the other world.

---

## ANGINA PECTORIS AND CORONARY THROMBOSIS\*

WILLARD R. WIRTH, M. D.†  
 NEW ORLEANS

Angina pectoris and coronary thrombosis, as two distinct yet closely related en-

tities due to coronary artery disease, deserve careful consideration, understanding and further study. According to the general conception they are both due to arteriosclerosis of the coronary arteries and are similar in some respects. Yet it is important to recognize their differences and differentiation. These diagnoses are being made correctly with increasing frequency, and whether or not this increase is real or apparent is a matter of personal opinion.

With the acceptance of the term *angina pectoris* as meaning a distinct clinical entity due to underlying sclerosis of the coronary arteries, one must be careful to exclude the use of the term as meaning pain over the heart. Such left sided chest pain may be due to a multitude of conditions and an attempt must be made to evaluate true thoracic pain to determine if it is really cardiac in origin.

Some of the conditions which may simulate *angina pectoris* because of the location or reference of the thoracic pain are as follows:

1. Referred nerve pressure pain: Such pains in the left thorax caused by cervical or upper thoracic arthritis, intercostal neuralgias or myalgias, herpes zoster, subdeltoid bursitis, diaphragmatic hernia, diseases of the pleura, lung or mediastinum, or diseases of the vertebrae or spinal cord.

2. Gastrointestinal conditions: Such organic conditions as gastric or duodenal ulcers, gallbladder or pancreatic lesions often cause referred pain into the thorax. Spastic conditions of the intestines themselves may be responsible. Again, a rather frequent so-called gastro-cardiac symptom complex, where certain gastrointestinal disturbances with abdominal distention and gastric flatulence produce an elevation of the diaphragm and apparently mechanically produce cardiac distress. This has been explained as being due to a twisting of the heart on its long axis as it is displaced upward with resulting coronary artery blood flow interference or more likely due to stretching of the peritoneum of the distended stomach. Since gastric disturbances are frequently prominent symptoms in *angina*

\*Read before the Coast County Medical Society, Biloxi, Miss., March 6, 1940.

†From the Department of Medicine, Tulane University, and the Heart Station, Touro Infirmary, New Orleans.

pectoris and attacks are frequently related to meals, it is often very difficult to determine correctly the exact primary factor.

3. Aortic disease may produce thoracic pain. Syphilitic aortitis or aneurysm, dissecting aneurysm, rheumatic or mycotic aortitis may be responsible.

4. Severe anemia, because of the decrease of oxygen-carrying power of the blood, may produce pain simulating angina pectoris.

5. Cardiac neuroses producing chest pains are often troublesome. A typical picture may be presented.

6. Neurocirculatory asthenia, or the effort syndrome, may be associated with chest pain that requires differentiation.

7. Nicotine angina: In this condition pain in the region of the heart results from excessive use of tobacco in susceptible individuals.

8. Prolonged rapid heart pain occurring in hyperthyroidism, during emotional stress, or as a result of abdominal distention.

9. Myocardial fatigue in hypertension, chronic cardiovascular disease or adhesive pericarditis.

Aside from these, there is the pain due to coronary angina pectoris, sometimes called Heberden's angina. It is this that one should mean when one says angina pectoris, and this alone. There is no place for such terms as anginoid, or pseudo-angina. It is generally believed that this is due to arteriosclerotic changes in the coronary arterial circulation. Such changes produce a deficient coronary blood flow which eventually produces degenerative changes in the myocardium. The term arteriosclerotic heart disease should indicate the belief or assumption that the cardiac changes present are due to sclerotic changes of the coronary arteries. It has been suggested, therefore, that it would be much better to use the term coronary heart disease instead of arteriosclerotic heart disease for this reason. Some of such patients have angina pectoris, others coronary thrombosis, others degenerative changes of the conducting tissues and myocardium, or all together.

#### MECHANISM OF PRODUCTION OF PAIN

As to the mechanism of pain production, the present most plausible explanation is as follows: Due to the sclerosis of the coronary arteries there is a relative decrease of coronary blood flow due to the narrowing of the arterial lumen and loss of elasticity. This relatively decreased flow is however adequate for the myocardium under ordinary conditions of activity. If, as a result of physical effort or emotional stress, cardiac activity is increased there is a corresponding increased demand for coronary blood flow. As a result of the pathologic changes this increased flow cannot result and there results a temporary relative myocardial ischemia and anoxemia. It is thought that this anoxemia in some undetermined manner gives rise to the production of pain with its characteristic referred localization. As soon as the effort or increased heart rate ceases the circulation again becomes adequate, the ischemia and anoxemia are remedied and the pain ceases.

Now it can be seen from the above explanation that any situation which can cause a disproportion between the blood or oxygen required by the myocardium and the blood or oxygen supplied to the myocardium can produce angina. This explains the occurrence of pain not only in the organic disease of the coronary arteries, but also in the anemias where the oxygen carrying power of the blood is decreased, in paroxysmal tachycardia and hyperthyroidism, in aortic regurgitation where pressure in the coronary circulation is very low in diastole because of the rapid regurgitation, and in syphilitic changes about the mouths of the coronary vessels.

#### SYMPTOMS

I have attempted to tabulate briefly the important symptoms of angina pectoris:

1. Upper substernal or precordial pain.
2. Pain is sudden in onset.
3. Pain occurs usually upon exertion, after eating, or under emotional stress.
4. Pain is steady, severe, sharp, continuous, gripping, strangling, pressing, vice-like, suffocating.



5. Pain radiates to the left axilla, down ulnar side of left arm to elbow, wrist, ring and little fingers. Pain may also radiate instead or in addition to the right arm, or to one or both sides of neck, jaw, face, or to either shoulder, back or upper abdomen.

6. Pain usually lasts from 15 to 30 minutes.

7. There is profuse cold clammy perspiration.

8. The facies is anxious and gray.

9. The blood pressure is usually elevated, even if previously normal.

10. The patient remains fixed in one position, either sitting, standing or lying, realizing that motion increases the pain.

11. Pain disappears with rest.

12. Physical examination, x-ray and electrocardiogram may be entirely negative. Recently there has been some discussion as to the significance of a large Q wave in the third lead of the electrocardiogram. At the present it does seem as if the presence of a large  $Q_3$  is presumptive but not absolute evidence of the presence of coronary sclerosis, especially when a  $Q_2$  is also present.

13. In questionable cases the electrocardiogram may be of further help as suggested recently if taken immediately after a period of calculated exercise, such as the Master's two step test. Often changes will occur in the electrocardiogram after such a test which were not present before, and which disappear after rest. These may occur with or without the associated production of an attack.

Such is the clinical picture of angina pectoris. The progression of the lesion is slow, and as the condition grows worse the amount of effort or emotional stress required to produce an attack decreases. Eventually the attacks may occur even at rest. When the attacks do occur at rest the precipitating factor may be a dream, some emotion, flatulence or changes in blood pressure occurring during sleep. The gravity of the prognosis is increased under such conditions. Of course, death may occur during any attack, probably as the result of ventricular fibrillation.

#### PROGNOSIS

The prognosis of angina pectoris is necessarily uncertain. While the average length of life after the first symptom has been estimated at four and a half years, it varies from immediate death to 20 years. One group of figures shows that 50 per cent of the patients die suddenly of the original attack, 30 per cent die of coronary thrombosis, 10 per cent of congestive failure, and the rest of cerebral hemorrhage, bronchopneumonia, or cancer. Incidentally, sudden death is usually cardiac in origin, either as a result of ventricular fibrillation, ventricular rupture or complete heart block.

#### TREATMENT

First, it is well to say that one should avoid the use of the term angina pectoris to the patient, if possible. The term is well known and carries with it a fear and dread which does not help the patient's morale. The seriousness of the condition should be adequately explained to the patient's family. Sometimes it is necessary to tell the patient the absolute truth so that he can adjust his life and affairs accordingly. Just when to tell a patient and how much requires a nicety of judgment which is very difficult to decide. Some have suggested the term of "vascular-spasm" to be used to the patient. This often proves quite satisfactory.

The pain should be relieved by the use of perles of amyl nitrite by inhalation, 5 drops, or soluble hypodermic tablets of nitroglycerine 1/100 gr. allowed to dissolve under the tongue. Three drops of spirits of nitroglycerine may be used in the same way, instead of the tablet. If neither of these medications is available the ingestion of 1 ounce of whiskey or brandy often causes sufficient vasodilatation to relieve the attack. The whiskey may be used in addition to the other medication in the presence of low blood pressure and shock. The soluble nitroglycerine tablets are usually preferred; they are easily carried around, easier to use and do not produce as much flushing or headache as amyl nitrite. Nitroglycerine is not habit forming, does not lose its effect by frequent use, and therefore should be used as often as necessary for the

relief of pain at its earliest recognition or even prophylactically before any effort or stress which is likely to produce an attack. If the pain is not relieved in 10 minutes by one of the above three medications, a second dose should be given. If in 10 minutes more there is no decrease of pain, morphine sulphate gr. 1/4 should be given by needle, and repeated in 10 minutes if necessary. Pain lasting longer than 30 minutes is more likely not to be angina pectoris and if cardiac in origin may well be coronary thrombosis. There is some question as to whether or not atropine should be given with the morphine. I prefer to use the morphine alone in coronary artery disease because of the possible effect of the atropine on decreasing the coronary flow and, by removing vagal effect, increasing the heart rate, both undesirable. The suggested use of 50 or 100 c. c. of 50 per cent glucose intravenously for shock will be discussed under the management of coronary thrombosis where this emergency usually occurs.

In an attempt to decrease the frequency and severity of the attacks the xanthines are often used. Many physicians do not believe the xanthines help at all. I believe I have seen beneficial results and give aminophyllin tablets, 1½ grains each, dissolved in water, three times daily after meals. These may be continued for long periods of time unless they produce nausea or diarrhea by cumulative action. Others prefer tablets of erythrol tetranitrate gr. 1/12 three times daily for continuous nitrite effect. This often produces headache, but may be helpful where the aminophyllin does not seem of any benefit. Sedatives, such as phenobarbital, grains 1/4 to 1/2 three times daily alone or with one of the above, decreases the irritability of the patient, produces relaxation and aids sleep. Larger doses, 1 or 1 1/2 grains may be used in addition, at bedtime if necessary. Bromides, chloral or other sedatives of choice may of course be substituted.

The attempt must be made to avoid all precipitating factors of the attacks. Exertion must be limited, excitement or emotion eliminated as much as possible, and flatulence and gastrointestinal disturbances

avoided by frequent small meals. A period of rest of from one to one and a half hours after the main meal, preferably in midday, should be advised. Nothing should be done that will produce an attack. The bowel movements should be kept soft with mineral oil, or mineral oil and agar or other mild laxatives to avoid the exertion of straining at stool.

Tobacco should be prohibited, if possible. Alcohol in moderation is not harmful and may even be beneficial; it should be allowed. Coffee and tea in moderation may also be permitted.

Other medications have not proved of any value. Potassium or sodium iodide have been used because of the time honored though empirical teaching of their value in arteriosclerosis. Their value is quite questionable and it has been suggested that when they do seem to help it may be because of a masked mild hyperthyroidism existing. Papaverine and tissue extracts or so-called heart hormones have not been of proved value.

If ventricular tachycardia occurs quinine should be used. It may even be advisable to use it when frequent ventricular premature contractions occur. Its dosage will be discussed later.

Digitalis is not indicated unless cardiac failure, auricular fibrillation or paroxysmal nocturnal dyspnea is present. It should then be used as usual.

Certain surgical procedures have been suggested for the treatment of angina pectoris. I have had no experience with any of them. Cervical ganglia sectioning, thoracic (one to five) ganglia and posterior root ablations, alcohol injections of the first five thoracic ganglia, total thyroidectomy, and implantations of pectoral muscle or omentum on the heart have all been suggested and performed. When on several occasions I have found cases that I thought suitable for such procedures I have been unable to get the consent of the patient or the family even to have a surgical opinion on the problem.

#### CORONARY THROMBOSIS

Coronary occlusion is almost 100 per cent due to the thrombosis of a sclerotic artery.

Rarely the occlusion may be embolic from an endocarditis or carcinomatous metastasis.

#### SYMPTOMS AND SIGNS

The pain is usually like that of angina pectoris. It is more often substernal than precordial, or both, and is severe, agonizing, persistent. It may be located chiefly in the epigastrium or hypochondrium, and in a few rare cases there is no pain. Under such circumstances other symptoms, especially dyspnea and shock, are predominant. The pain is sudden in onset, often while the patient is at rest, lying down or after meals. The radiation is like that of angina pectoris. Usually the pain lasts longer than that of angina, one hour or more, or even for days or weeks, and is not relieved by the vasodilators mentioned previously. Morphine does usually relieve the pain.

The patient is usually anxious and restless, walking up and down or swaying back and forth, holding the chest over the sternum. The facies is anxious, there is a profuse cold perspiration and a rapid weak pulse.

Death may occur immediately as a result of ventricular fibrillation or shock, or the immediate attack may be survived and heart failure, heart rupture, or cerebral or pulmonary embolism may result in death later.

The presence of a pericardial friction rub is a most important physical sign. It is said to occur in 20 per cent of cases. In my experience, with careful repeated observations, I have not found nearly such a large percentage. It occurs in a few patients within a few hours, but usually can be recognized from the second to the fifth day. It is sharply localized ordinarily and of short duration.

Fever and leukocytosis occur in from 24 to 36 hours and last from two or three days to many weeks. The fever usually ranges from 100° to 102°F. and the leukocytosis from 10,000 to 14,000. Counts of 20,000 or more may occur. These two signs are very important and are due to the absorption of split protein from the necrotic process of the myocardial infarct.

In a few cases, about 10 per cent, a glycosuria and hyperglycemia occur in a few hours, to last 36 to 48 hours. The exact mechanism for the production of this sign is not understood. Oliguria is usually present.

The blood pressure usually falls. The fall may be delayed one or two days and occurs gradually, and early it may actually be elevated. While the immediate fall of blood pressure is thought to be the rule, one should not be misled by the finding of an elevated or usual blood pressure. Later, after weeks, the blood pressure gradually rises again, and while it may reach its original value it usually remains at a lower level.

Dyspnea may be marked, and may be associated with the coughing of frothy bloody sputum as the result of pulmonary edema. In less severe cases, rales may be heard at both lung bases.

Nausea and vomiting may occur. These symptoms are often so pronounced as to lead to the mistake that the attack is gastrointestinal in origin. To add to this difficulty a mild degree of icterus may be present. There may be abdominal distention and hiccough. The liver edge may be palpable and tender.

The heart sounds are distant and cardiac irregularities such as premature contractions, auricular fibrillation or ventricular tachycardia are not uncommon. The pulmonary second sound is usually accentuated.

The electrocardiogram is of great service and will substantiate the diagnosis or establish the diagnosis in practically all cases if taken within the first five days. These typical changes may occur immediately, within a few hours, or be delayed in their typical form 36 to 48 hours. The changes consist of alterations of S-T interval and T waves essentially, though bundle branch block or auriculoventricular block may occur. The fourth lead, or precordial lead, is often of considerable assistance. The electrocardiogram usually shows one of two patterns: The Q<sub>1</sub> T<sub>1</sub> or anterior type electrocardiogram, indicating occlusion of the anterior descending branch of the left coronary, or the Q<sub>3</sub> T<sub>3</sub> or posterior type, indicating occlusion of the right coronary or the circum-

flex branch of the left. There has been considerable discussion as to whether the mortality is less and the prognosis better in the majority of patients with the  $Q_3 T_3$  or posterior type cardiac infarcts than in those with the  $Q_1 T_1$  or anterior type cardiac infarction.

The sedimentation rate is helpful. It is usually accelerated from two to five days after the thrombosis and may be so for several weeks. It too is due to the absorption of the split protein from the necrotic heart muscle. It is useful in conjunction with other observations in determining how long a patient must be kept at rest, because its marked decrease or return to normal is said to indicate that the healing of the infarct is complete and solid.

#### INCIDENCE

The immediate mortality rate of coronary thrombosis is about 17 per cent. The condition occurs three to four times more frequently in males than in female. In women it is usually associated with diabetes or hypertension, and the absence of either of these two conditions in a female with suggestive symptoms should make the diagnosis of coronary disease very unlikely. Heart failure occurs in about two-thirds of the cases, and while more often left sided, may be both left and right sided. Shock occurs in about 50 per cent of the cases and the mortality is said to be six times greater with shock than without. The average life expectancy after the first attack of coronary thrombosis is said to be about two and a half years.

#### TREATMENT

The initial attempt in treating the acute attack is the relief of pain. Most physicians believe that this is best done with morphine in 1/4 to 1/2 grain hypodermatically, without atropine for the reasons previously mentioned. Some prefer to try codeine, grains 1/2 to 1 by needle because of the vomiting, respiratory depression, spasms of sphincters and urinary retention produced by morphine. They use morphine in smallest doses only if the pain is severe and prolonged. I prefer to risk the disadvantages of morphine to secure prompt certain relief. About

1/6 grain morphine will usually do as much good as 1 grain of codeine. Even 1/4 grain of morphine may have to be repeated every 10 minutes until relief, though this is preferable to giving 1/2 grain morphine immediately. Pantopon has no advantage, being only dilute morphine. Dilaudid may be used, 1/20 grain being equal to 1/4 grain morphine. It is also habit forming however; I personally have seen two cases of addiction to dilaudid. I believe there is no adequate substitute for morphine in this circumstance.

If shock is present it must be combated with external heat, and possibly the administration of coramine. Adrenalin, ephedrine or infusions should not be used unless absolutely necessary. I have used the intravenous administration of 50 c. c. of 50 per cent glucose once or twice daily with excellent results in shock, pain and oliguria. Recently there has been some expression of opinion and some experimental evidence tending to show that hypertonic glucose may be harmful rather than beneficial in coronary sclerosis, increasing the load on the circulation by increasing plasma and increasing oxygen demand of the myocardium.

The patient should be kept at absolute rest, for at least six to eight weeks, or more. During this time it is well to encourage active and passive motion of the legs to avoid the frequent occurrence of venous thrombosis. Sedatives will help in the enforcement of this rest regimen.

Oxygen is often helpful, especially with cyanosis, shock, pulmonary edema or extreme pain of long duration. The newer aviation-type oxygen masks are efficient, practical and more comfortable for the patient.

Digitalization is indicated only if there is cardiac failure or auricular fibrillation of high grade. Then there should be no hesitancy in proceeding with the digitalis therapy.

Some have advocated the routine administration of quinidine to prevent the occurrence of ventricular fibrillation. I believe it better to use quinidine only if there are fre-

quent ventricular premature contractions or ventricular tachycardia, because it is a cardiac muscle depressant and not without danger. Others might also begin its use with auricular fibrillation, though I would prefer digitalis in full dosage first and then quinidine if necessary in addition to the maintenance digitalis dose. The dosage of the quinidine is 3 grains to be repeated at four to six hour intervals if necessary, if no toxic symptoms of nausea, urticaria or visual disturbances occur. It may be necessary to give the quinidine at closer intervals, and often a maintenance dose is necessary.

Hot packs to the kidney regions may help the anuria. Stupes and enemas two or three times daily may be used if necessary for abdominal distention. For the first 48 hours, especially if there is shock, it is better to let the intestinal tract alone and get maximum rest and least disturbance.

Mercurial diuretics like mercupurin or salyrgan have been recommended for excessive breathlessness. The theobromine derivatives or aminophyllin may be given in 1 1/2 grain doses three or four times daily, dissolved in water, though it is best to wait until any nausea has subsided as it may aggravate or produce this symptom. Glycine, 10 grams (1 level tablespoonful) three times daily is said to help muscle metabolism and may be tried.

The diet should be liquid and soft for the first few days, and given in frequent small feedings. In overweight patients a low caloric diet is indicated for reduction, 800 or 1000 calories if possible. Even without overweight a low calorie diet reduces the work on the heart and is beneficial. Often a Karrell diet for a few days, especially with heart failure, is helpful, because it is low calorie, low protein, salt poor, and provides a limitation of fluid. This is merely 200 c. c., or one glass, of skimmed milk four times daily with as little additional water as possible. The use of heparin in coronary thrombosis as an anticoagulant is still questionable, though it may eventually be of clinical value.

Later, there is often an anorexia which is troublesome. Then vitamin B, dry wine or other alcoholics in moderation help to improve the appetite. Tobacco should preferably be entirely eliminated or firmly moderated. Tea and coffee may be allowed in moderation.

If the patient is diabetic he should be managed very carefully and no attempt made to reduce the glycosuria too suddenly with insulin. If syphilitic, treatment for this condition should not be given until after the emergency, and then only iodide or bismuth used.

After the six to eight weeks' period, and an adequate recovery, if cardiac compensation is sufficient and there are no other contraindications, activity may be gradually resumed and carefully increased. The patient must be observed for any untoward signs or symptoms during this period. He should be told that the occurrence of pain, breathlessness, fatigue or ankle edema means that he is doing too much, and he should stop, rest, and avoid the repetition of such activity. He may be allowed to do anything within reason that produces none of these symptoms. Many of these patients can in this manner and with care resume a remarkable degree of normal, happy, useful activity.

#### BIBLIOGRAPHY

1. Levine, Samuel A.: *Clinical Heart Disease*, W. B. Saunders, Co., Philadelphia, 1936.
2. Levy, Robert L.: *Diseases of the Coronary Arteries and Cardiac Pain*, The Macmillan Co., New York, 1936.
3. Herrmann, George R.: *Synopsis of Diseases of the Heart and Arteries*, C. V. Mosby, St. Louis, 1936.
4. Solandt, D. Y., and Best, Charles H.: Heparin and coronary thrombosis in experimental animals, *Lancet*, 2:130, 1938.
5. Murray, D. W., and Best, Charles H.: Use of heparin in thrombosis, *Ann. Surg.*, 108:163, 1938.
6. Scherf, David, and Weissberg, Jonas: Hypertonic glucose solution in angina pectoris, *Am. Heart J.*, 18: 411, 1939.
7. Guillemont, Grant: Management of coronary occlusion, *Guthrie Clin. Bull.*, 8: 89, 1938.
8. Gold, Harry: Drug therapy in coronary disease, *J. A. M. A.*, 112: 1, 1939.
9. Scherf, David, and Boyd, Linn J.: *Cardiovascular Diseases*, C. V. Mosby, St. Louis, 1939.

## PLASMA PROTEINS\*

METHODS OF DETERMINATION AND  
CLINICAL SIGNIFICANCEHOWARD H. BEARD, Ph. D.†  
NEW ORLEANS

The plasma proteins are fibrinogen, albumin and globulin. The total plasma protein ranges from 6 to 8 gm./100 c. c., average, 7.4 gm./100 c. c., of which the albumin ranges from 3.6 to 5.4 gm./100 c. c., average, 4.3 gm./100 c. c., and the globulin ranges from 1.5 to 3.4 gm./100 c. c., average, 2.8 gm./100 c. c. The albumin: globulin ratio is about 1.53. The fibrinogen is about 0.3 gm./100 c. c.

*Fibrinogen:* The function of this protein in the clotting of the blood is well known. Diets rich in protein produce an increase in the fibrinogen. This protein also participates in the repair of injuries of the vascular system. Tissue injury, infection or inflammation, acute hepatitis, menstruation and pregnancy cause an increase in fibrinogen, while in diseases of the liver, such as acute yellow atrophy or in phosphorus poisoning, there is a decrease in the fibrinogen.

*Albumin and Globulin:* The most important function of these plasma proteins is the regulation of the normal osmotic pressure between the blood and tissues. The normal osmotic pressure of the plasma is 6.5 atmospheres (494 cm. Hg). Wies and Peters<sup>1</sup> have given the following equation for calculating the colloid osmotic pressure:

$$\Pi = 60.9 \times A^w + 22.0 \times G^w - 50,$$

where  $\Pi$  = the osmotic pressure in mm. of water;  $A^w$ , the grams of albumin, and  $G^w$ , the grams of globulin, per 1000 grams of water.

## HYPER- AND HYPOPROTEINEMIA

Deficits in plasma proteins are encountered more often clinically than hyperproteinemia. The plasma proteins are below

\*Presented before the scientific meeting of the Orleans Parish Medical Society, February 12, 1940.

†From the Department of Biochemistry, Louisiana State University School of Medicine, New Orleans, La.

normal in the following conditions: Non-hemorrhagic degenerative Bright's disease or nephrosis which is due to a deficit in albumin and the tendency toward edema runs parallel with the albumin concentration of the plasma; terminal glomerular nephritis; malnutrition; cirrhosis of the liver; non-inflammatory edema fluids or transudates; pregnancy, and in infants under two years of age. Normal plasma proteins are found in the following conditions: Acute glomerular nephritis, arteriosclerotic Bright's disease, purulent exudates from empyema, exudates from tuberculosis, pleurisy, tuberculous peritonitis, pneumonic pleurisy, hemorrhagic anemia and meningitis. The protein content of subcutaneous edema fluids, and of pleural and peritoneal transudates occurring as a result of myocardial failure, nephrosis, and cirrhosis of the liver, ranges from 0.1 to 1 per cent. A high concentration of plasma proteins occurs in the following conditions: Kala-azar<sup>2</sup> due to a rise in the globulin content while the albumin is reduced, multiple myeloma,<sup>3</sup> lymphogranuloma inguinale<sup>4</sup> and in severe dehydration<sup>5</sup> due to restricted water intake, diarrhea, or vomiting; subcutaneous edema fluid of acute nephritis; blister fluids, and in the edema fluid of angioneurotic edema.

Leiter<sup>6</sup> observed that edema begins in dogs when the plasma protein content falls below 3 per cent, and disappears as the protein content is raised. Whipple and co-workers<sup>7</sup> studied plasma protein regeneration and found that a meat diet was best for this purpose. It was observed that fibrinogen and globulin were regenerated faster than albumin. Depletion of the plasma proteins below 1 per cent results in fatal shock. Edema in man usually results when the plasma protein falls below 5 per cent. Chronic malnutrition resulting in edema is due to a low protein intake and is almost always associated with a low plasma albumin.<sup>8, 9, 10</sup> In nephrosis the edema is accompanied by a large excretion of protein in the urine.

Many observers have shown that there is a parallelism between the specific gravity

and the protein content of the plasma or serum, and this relationship can be expressed by the following equation:

Per cent serum protein =  $343 \times (\text{S. G.} - 1.007)$ .

#### METHODS OF DETERMINING THE PLASMA PROTEINS

According to Myers and Muntwyler,<sup>5</sup> the method of Howe<sup>11</sup> gives reproducible results. The well-known Kjeldahl method has been used for many years for the determination of the plasma proteins. Moore and Van Slyke<sup>12</sup> showed that the specific gravity of the serum is mainly governed by the protein content and published a method of protein determination by weighing serum in special glass bottles on an analytical balance. While accurate, this method requires more time and equipment than the methods to be described below.

It is my intention here to mention the two recent methods for the determination of the specific gravity of the plasma which are probably destined to become standard procedures for this determination in the future. They leave little to be desired from the standpoint of accuracy, simplicity and rapidity. The first of these is the glass bead method of Jens Bing,<sup>13, 14</sup> of Copenhagen, for the determination of hypoproteinemia. Bing has been able to determine cases of hypoproteinemia by means of a float in the form of a small glass bead made from a glass tube with a diameter of 2 mm. and a thickness of 0.8 mm. The tube is sealed by melting at one end, blown into a small sphere, which is then cut off, whereupon the other end is sealed by melting. The glass bead is then ground until at 20° C. it is suspended in a salt solution of a specific gravity of 1.0245, but floats at the top or sinks to the bottom with a higher or lower gravity, respectively. The bead floats at the top of the liquid at a specific gravity of 1.025, is suspended at specific gravity 1.0245 and sinks to the bottom of the tube at specific gravity 1.024. It will also move downwards at a temperature of 21° C. and upwards at 19° C. Hence the temperature of the determination should be at 20° C. On testing the bead on 100 sera of

which the protein content had been determined by the Kjeldahl method, the result was found to be correct in every case at value of over 6.2 and under 5.84 per cent protein. The error of the method is  $\pm 0.5$  per cent.

#### DIRECTIONS FOR THE TESTS

After the briefest possible stasis 4 or 5 c. c. of blood are taken by venal puncture in a dry centrifuge tube, which is then stoppered to prevent evaporation. The sample stands for some time for coagulation, whereupon the coagulate is thoroughly centrifuged and the 2 or 3 c. c. of serum are poured into a reagent tube in which has been placed a thermometer. The glass bead is then dropped into the serum and the reaction is read off: Negative (i. e., there is more than about 6 per cent protein) if the bead floats at 20° C. or lower, and positive (i. e., there is less than 6 per cent protein) if the bead sinks to the bottom of the tube at 20° C. or lower. Only in cases where the bead ascends at temperatures below 20° C. or descends at temperatures above 20° C. is it necessary to adjust the temperature to exactly 20° C., which can be done by warming the tube with the hand or cooling it under running water. At 20° C. the test requires 15 to 30 seconds, whereas it requires two or three minutes if the temperature has to be adjusted.

The method of choice, however, and the one which has been adopted in 68 hospitals and medical schools in this country, is the falling drop method of Barbour and Hamilton,<sup>15</sup> of Yale, of determining the specific gravity. The principle of this method involves timing the fall of a drop of body fluid of known size through a definite distance in a mixture non-miscible with the fluid. This mixture consists of xylene and brombenzene. A heavier drop will fall faster than a drop nearer the density of the mixture. The density of the XBB mixture is not required. Only the falling time of a solution of potassium sulfate of known density is determined. This serves as an index to the significant relations between drop and XBB mixture obtaining at the

moment. The accuracy of the method is one-tenth of 1 per cent.

The falling drop tubes are engraved  $B_1$ ,  $B_2$ ,  $P_1$ ,  $P_2$  respectively.  $B_1$  is used for normal and concentrated blood,  $B_2$  for anemic blood. Tubes  $P_1$  and  $P_2$  are used for plasma and serum. By means of the Guthrie pipet controller, a drop containing 1/100 c. c. of body fluid is released into the appropriate falling drop tube, filled with a liquid immiscible with the body fluid. The drop is timed as it passes between two marks 30 cm. apart, engraved upon each tube. A stop watch calibrated in 1/10 seconds is employed and the time noted. The falling drop pipet allows the release of two drops. The falling time of the first drop is not recorded as its release is a trial operation. The falling time of the second, third and successive drops, however, is noted and an average is recorded. The temperature of the water bath is noted. The apparent density difference of the body fluid is then found by means of the alignment chart furnished with each set.\* The apparent density difference of the standard solution of known specific gravity is next determined by going through a similar procedure as described above. With the above data and applying simple arithmetic the specific gravity of the fluid is found, from which the protein content may also be calculated.

Normal blood densities range from 1.053 for the female to 1.056 for the male. Polowe<sup>16</sup> has discussed the clinical significance of the blood specific gravity determination. This determination achieved immense popularity after its use in the cases of many of the victims of the recent von Hindenberg Zeppelin disaster, Lakehurst, N. J. Hopeless cases were rushed to the Columbia Presbyterian Medical Center where their conditions and control of their treatment was guided by the specific gravity method and their lives saved. Mortality due to cholera at the Calcutta Medical College was reduced from 50 to 21 per cent

\*Eimer and Amend, 205 Third Ave., New York City, Bulletin 590 describes in detail the falling drop apparatus.

by maintaining the hemoconcentration slightly below normal. The hemoconcentration of the blood proteins was found by the specific gravity method and adjusted by the administration of fluids.<sup>17</sup> The same was true in many cases of intestinal obstruction.<sup>18</sup> Shock was found to increase the specific gravity of the blood<sup>19, 20, 21, 22</sup> and this occurred before the drop in blood pressure. The determination of the specific gravity of the blood has proved of great value in detecting and controlling post-operative hemorrhage.<sup>23</sup> Scudder's book on "Shock, Blood Studies as a Guide to Therapy," will be off the press in the near future.

#### CONCLUSIONS

Some of the advantages of the falling drop method for determining blood specific gravity are:

1. The determination requires one minute, using one drop of blood and can be made in the operating room.
2. From these determinations the percentage of plasma proteins can be estimated and the detection and control of conditions of dehydration, shock or postoperative hemorrhage achieved.

#### REFERENCES

1. Wies, C. H., and Peters, J. P.: Osmotic pressure of proteins in whole serum, *J. Clin. Invest.*, 16:93, 1937.
2. Wu, H.: New colorimetric method for determination of plasma proteins, *J. Biol. Chem.*, 51:33, 1922.
3. Feller, A. E., and Fowler, W. M.: Hyperproteinemia in multiple myeloma, *J. Lab. & Clin. Med.*, 23:369, 1938.
4. Gutman, A. B., and Gutman, E. B.: Relation of serum calcium to serum albumin and globulins, *J. Clin. Invest.*, 16:903, 1937.
5. Myers, V. C., and Muntwyler, E.: Chemical changes in the blood and their clinical significance, *Physiol. Rev.*, 20:1, 1940.
6. Leiter, L.: Experimental edema, *Proc. Soc. Exp. Biol. & Med.*, 26:173, 1928.
7. Kerr, W. J., Hurwitz, S. H., and Whipple, G. H.: Regeneration of blood proteins, *Am. J. Physiol.*, 47:356, 370, 379, 1918.
8. Kohman, E. A.: Experimental production of edema as related to protein deficiency, *Am. J. Physiol.* 51:378, 1920.
9. Youmans, J. B.: Endemic edema, *J. A. M. A.*, 99:883, 1932.
10. Dodd, K., Minot, A. S., and Keller, M.: Edema in infancy and childhood as expression of chronic dietary insufficiency, *J. Pediat.*, 8:442, 1936; occurrence of moderately reduced serum albumin in 500 children in southern clinic, *Ibid.* 8:452, 1936.
11. Howe, P. E.: Determination of proteins in blood: a micro method, *J. Biol. Chem.*, 49:109, 1921.
12. Moore, N. S., and Van Slyke, D. D.: Relationships between plasma specific gravity, plasma protein content and edema in nephritis, *J. Clin. Invest.*, 8:337, 1930.
13. Bing, J.: Rapid-method of determining hypoproteinemia with glass bead, *Acta. Med. Scand.*, 94:619, 1938.



14. Bing, J.: Serum-protein determination by glass bead method, *Acta Med. Scand.*, 96:403, 1938.
15. Barbour, H. G., and Hamilton, W. F.: Falling drop method for determining specific gravity, *J. Biol. Chem.*, 69:625, 1926.
16. Polowe, D.: The specific gravity of the blood: its clinical significance, *J. Lab. & Clin. Med.*, 14:811, 1929.
17. Rogers, L.: *Cholera and Its Treatment*, London, Henry Frowde, Oxford Univ. Press, 1913.
18. Scudder, J., Zwemer, R. L., and Whipple, A. O.: Acute intestinal obstruction; evaluation of results in 2150 cases; with detailed studies of 25 showing potassium as toxic factor, *Ann., Surg.*, 107:161, 1938.
19. Roy, C. S.: *J. Physiol., Proc. Physiol. Soc.* 5, ix-xi, 1884-85.
20. Copeman, S. M., and Sherrington, C. S.: *J. Physiol. Proc. Physiol. Soc.* ii, viii-ix, 1890.
21. Vale, F. P.: Concerning shock; with a contribution to its pathology, *Med. Rec.*, 66:325, 1904.
22. Zwemer, R. L., and Scudder, J.: Blood plasma during experimental shock, *Surgery*, 4:510, 1938.
23. Richet, C., Brodin, P., and Saint-Girons, F.: De la densité du sang après les grandes hémorragies, *Compt. rend. Acad. d. sc.*, Paris, 166:587, 1918.

---

## THE EFFECTS OF WAR ON MENTAL HEALTH\*

C. S. HOLBROOK, M. D.  
NEW ORLEANS

The past twelve months have been anything but quiet and serene; tremendous forces of unrest have been present in Europe and to a somewhat less degree in this country. There were a number of crises which, on September 1, culminated in the commencement of a second World War. Even a prophet of old would undoubtedly find it difficult to say what the end will be; it requires less than a seer to admit that the conception of a "war to end wars" was only idealistic wishing. I have given up such idealism and believe it a fact that a millennium will not come to pass for many centuries; man will have to change completely. Evolution is a slow mechanism.

The last chapters of the history of the First World War are not free of serious and depressing connotations. Brig. Gen. Frank T. Hines (in *Military Surgeon*, May, 1939) reminds us that the Veterans Administration has grown to be one of the largest government agencies, having over 38,000 employees. The Veterans Adminis-

tration as now operating cares for all activities affecting beneficiaries of all wars; there are nearly 600,000 living veterans and 316,000 dependents of deceased veterans who receive monthly pensions. There are 341,000 World War veterans who receive monthly compensation on account of disabilities considered of World War service origin or aggravation; 79,000 dependent parents, 2,700 widows, and 37,000 orphans receive monthly compensation.

As the government is paying a pension to one child of a veteran of the War of 1812, it is probable that for the next fifty or seventy-five years pensions will be paid to descendants of veterans of the World War. From the annual report of the Administrator of Veterans Affairs for 1938, it was learned that the total disbursements of funds of the Veterans Administration made a grand total of \$629,829,721.73.

During the active period of training and the state of combat the total number of neuropsychiatric cases amounted to nearly 50 per cent of all casualties (Col. W. F. Lorenz, Sixth International Congress). Since the Armistice the actual number of such disabilities has continued to increase, and the peak load is not expected until 1947.

I must not impose upon your patience longer by quoting statistics. We realize better than anyone else the need of proper plans by the Surgeon General's office and his expert advisors for the study of all recruits at the time they apply for enlistment or during a probation period of three months. This Association, with the American Psychiatric Association, should urge as strongly as possible the institution of measures to reduce to a minimum the casualties in our armed forces resulting from neuropsychiatric disorders.

To describe the tension, suspense, uncertainty, apprehension, anxiety and fears that have resulted from the seizure and dismemberment of the smaller countries of Europe and the eminence of conflicts between the greater nations, the phrase "war of nerves" has been coined. While this phrase may not rival "shell shock" of the last war, it is more accurate in its impli-

---

\*Presidential address before the Southern Psychiatric Association, Louisville, Kentucky, October 9-10, 1939.

cation and affects the peoples of all civilized nations.

Great wars have taken place in the past, but there has never been a situation which might be compared to the present in the effect on the psyche. Agents of destruction, as tanks, huge cannon, submarines, and airplanes with their bombs, have been improved during the past twenty years, making a modern war more terrible than ever before. However, there is another aspect to the present war that is experienced far away from any physical disturbance wrought by airplanes or bombs. All the wonderful achievements of this mechanical age are not pure blessings, for space and time have been eliminated. Forty or fifty years ago this country was remote from Europe, and what took place in the Eastern Hemisphere could have but little effect on those living on this continent; even in 1917 and 1918 we were still somewhat remote. The effect of radio in this troubled time is difficult to measure, but it is my opinion that medical historians will find the radio has, in effect, produced a world wide war and that we are actually in that war, the "war of nerves." Like every other American, I pray we shall never have to send an army to fight on foreign battlefields; however, due to the elimination of distance we are affected emotionally by what takes place in countries many thousand miles away.

It may be, as averred, that this war will be won by propaganda. The last war did not terminate until men at the front learned that those at home were suffering and discouraged. A whole nation has been forbidden to listen to radio talks from beyond its own borders in order that the people might hear only that which has been prepared for their consumption. The dropping of leaflets from airplanes at the proper time may prove very valuable. That, however, is another story.

I wish to direct your attention to the effect of the present war in Europe on men and women of our country; there are very few people in the United States who are not concerned to a greater or lesser extent

by the happenings in Europe. Today the news broadcasts are listened to more avidly than ever before; the announcers dramatize the news by making it sensational and enhancing all the lurid details; the trans-Atlantic broadcasts take one very close to the area of strife. All these factors play important roles in stirring the emotions and disturbing the sympathetic nervous system and many bodily functions. It seems to me that the blood pressure of the nation must have risen to above normal since there has been so much to disturb the emotional equilibrium. There is a fear among many, particularly among those old enough to remember 1914-1918, that this country will be drawn into the war. However, as has always been the case, the younger generation experiences little concern.

A number of people have told me they can hardly think of anything except this dreadful war; others, I have observed, have developed depressive disorders and mild anxiety states as a result of the affairs in Europe. It is said that mental disorders increased greatly in Spain due to the privations and horrors of their civil war, and one writer stated that insanity had increased by 300 per cent, although a confirmation of this has not come to my attention.

At this meeting of the Southern Psychiatric Association, and in others to follow, I hope you will investigate further the effects of a world war on mental health and devise measures which may help minimize the harmful effects of this "war of nerves."

---

#### ACUTE EPIDURAL ABSCESS OF THE SPINAL CANAL\*

DEAN H. ECHOLS, M. D.  
NEW ORLEANS

In May, 1939, J. O. Weilbaeher, Jr., read a paper before this Society on acute epidural abscess of the spinal canal. For this reason, probably, the chairman of the program committee asked if I could show

---

\*Presented before the Orleans Parish Medical Society, February 12, 1940.

such a patient. We have two young men here on the stage tonight who are recovering from this disease.

## CASE REPORT NO. 1

This man had a mastoidectomy at the Eye, Ear, Nose and Throat Hospital last June. There was nothing unusual about the infection or the operation. He went home after the usual period of time. About two weeks later he began to have severe pain in both sides of the chest which, in retrospect, was caused by irritation of nerve roots by an extradural abscess of the spinal canal. A few days later he came to Charity Hospital. There he rapidly became paralyzed below the midsternal level. On the evening of the day I saw him, he was unable to wiggle the toes of either foot and was anesthetic below the nipple line. The bladder was paralyzed. There was fever and leukocytosis. A spinal puncture demonstrated a complete subarachnoid block. One cubic centimeter of lipiodol was injected to determine the exact site of the lesion. On the same day a laminectomy was performed under local anesthesia. A mass of granulation tissue and pus was evacuated from the canal thus relieving the compression of the spinal cord. About twenty-four days later he was able to move the toes. Now, at the end of three months, he is walking and has returned to work in a newspaper office. The bladder function is practically normal and the anesthesia has disappeared.

## CASE REPORT NO. 2

To be as brief as possible, this young man presents an almost identical picture. He was at Charity Hospital on the surgical service where he was being treated for boils on the buttocks. He was about to go home when he complained of pain in both sides of the chest. After a few days of pain and rising fever he started to become anesthetic and paralyzed below the nipple level. He developed urinary retention and had to be catheterized. The surgical resident found a complete spinal block, and one cubic centimeter of lipiodol was used to demonstrate the exact site of the lesion. A few hours later he had become almost completely anesthetic and paralyzed below the waist. At operation on the same day a mass of granulation tissue and pus was removed from the spinal canal. Because he was paralyzed a shorter time than the preceding patient, he has already started to walk. At this time, five weeks following operation, he has recovered control of the urinary bladder and the anesthesia has largely disappeared.

## CONCLUDING REMARKS

These two patients present the classical picture of metastatic abscess of the extradural tissues of the spinal canal. This disease entity is usually erroneously diagnosed as poliomyelitis or infectious mye-

litis. Such mistakes could be easily avoided by use of the Queckenstedt test. If a spinal block is found in a patient who is rapidly becoming paraplegic, a laminectomy should be performed at the earliest possible moment. If operation is postponed until 24 hours after paralysis has become complete, there is practically no chance for recovery of function.

---

 ACUTE SPONTANEOUS CEREBRAL  
VASCULAR ACCIDENTS  
IN ADULTS

## A REVIEW

LOUIS K. LEVY, M. D.†  
NEW ORLEANS

It is important to differentiate the various spontaneous\* cerebral vascular accidents. The average physician rarely attempts to do so, and the majority of cases of cerebral vascular lesions are indiscriminately labeled "cerebral hemorrhage", or "cerebral accident." This is true despite the differences in symptoms, signs, and, with particular emphasis, the prognosis of these conditions. The academic exercise of localizing the lesion, which is so intriguing to the neurologist and internist, must be supplemented by an ability to differentiate the types of lesions.<sup>1</sup>

Due to their extreme rarity, all instances of bleeding from the meningeal vessels, with the exception of the important syndrome of spontaneous subarachnoid hemorrhage, have been eliminated from the discussion.

## SPONTANEOUS SUBARACHNOID HEMORRHAGE

One of the oldest and most interesting reports on the subject was given by Bramwell<sup>2</sup> in 1886. The clinical diagnosis was facilitated by the introduction of lumbar puncture by Quincke<sup>3</sup> in 1891. Apparently this condition was seldom recognized clinic-

---

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana, New Orleans.

\*By the word "spontaneous" it must be understood that syndromes usually due to trauma are eliminated and of necessity syndromes that may be precipitated by trauma are included.

ally before 1904, and it has been but recently that the syndrome has been described with any degree of frequency.

Undoubtedly, spontaneous subarachnoid hemorrhage occurs much more frequently than is commonly appreciated.<sup>4</sup> Ohler and Hurwitz<sup>5</sup> found that in an 18 month period at the Boston City Hospital there were 353 cases of cerebrovascular accidents of all types, and among that group were 24 cases of spontaneous subarachnoid hemorrhage. By comparison, they showed that during the same period the much more generally recognized subacute bacterial endocarditis was represented by 22 cases. Spontaneous subarachnoid hemorrhage may occur at any age, but apparently it occurs most frequently between the ages of 25 and 40 years.<sup>6, 7</sup>

Spontaneous subarachnoid hemorrhage follows the rupture of a meningeal aneurysm<sup>1</sup> or a congenitally defective meningeal vessel lying in the subarachnoid space. Observers are uniformly of the opinion that the syndrome occurs most commonly on the basis of the rupture of a known or unsuspected aneurysm, generally at the base of the brain. All are agreed that syphilis is rarely the cause of the aneurysm formation. Ohler and Hurwitz<sup>5</sup> were unable to demonstrate syphilis in a series of 24 cases. Aneurysm formation may be due to congenital defect in structure, arteriosclerosis, or mycotic in type,<sup>1</sup> and even though present may be very difficult to find on post-mortem examination (Schmidt<sup>8</sup>). According to Strauss and his co-workers,<sup>7</sup> and Wechsler,<sup>9</sup> the most common pathologic finding is arterial degeneration of the arteriosclerotic type, and the former group state that this is true irrespective of age. Other possible causes of spontaneous subarachnoid bleeding are scurvy, hemophilia, leukemia, uremia, and acute infections.<sup>10</sup>

#### SYMPTOMS

As a rule symptoms arising from spontaneous subarachnoid bleeding have an acute onset.<sup>1, 4, 9</sup> However, headaches attributable to the presence of an aneurysm may have been present prior to the acute onset. According to Hurwitz,<sup>5</sup> there is no

condition in medicine that is more dramatic, more sudden, than subarachnoid hemorrhage. Merritt<sup>1</sup> feels that the diagnosis can usually be made from the history and only rarely is the classical syndrome absent.

The most common presenting symptom is severe headache, which steadily increases in intensity. Dizziness is also a frequent symptom. Depending on the extent of bleeding, a cloudy mental condition, stupor, or coma may follow in a few hours or days. Focal signs are usually absent.<sup>1</sup> However, ptosis and ocular palsies may occur with basal bleeding.<sup>9</sup> McIver and Wilson<sup>11</sup> have noted that if hemiplegia develops, the face and arm, as a rule, more often show involvement than the leg because the hemorrhage is more often basilar in origin. Stiffness of the neck and Kernig's sign are rarely absent. There may be some degree of fever, a slow pulse, and albuminuria. Leukocytosis, as described by Musser,<sup>12</sup> has been frequently noted. The pupils may be of any size, and Wechsler<sup>9</sup> has often noted inequality and sluggishness in reaction. Wilson<sup>4</sup> found that many patients show mild glycosuria or hyperglycemia. Hypertension may or may not be present. Apparently, ophthalmoscopic examination will only occasionally reveal papilledema.<sup>1</sup> Coma and convulsions at the onset are quite rare. The cardinal finding of diagnostic import is the presence of gross blood well mixed with spinal fluid,<sup>1, 4, 9</sup> which is never absent unless the puncture is done less than three to four hours after the onset.<sup>1</sup> The intracranial pressure is moderately to markedly increased. All agree with Sharpe<sup>13</sup> that diagnostic lumbar puncture should never be performed before the patient has recovered from the initial shock.

Rapid onset of headache, drowsiness, neck rigidity, moderate fever, possibly albuminuria and leukocytosis should arouse suspicion of subarachnoid hemorrhage. Wilson<sup>4</sup> feels that the diagnosis of spontaneous subarachnoid hemorrhage is not considered often enough as a possibility in the stuporous patient. Acute purulent meningitis,<sup>14</sup> subdural hematoma, and intracerebral hem-

orrhage have been the most frequently mistaken diagnoses observed.<sup>1</sup> Other conditions that have caused confusion are encephalitis, uremia, and diabetic coma.<sup>4</sup> It is not possible in many cases to differentiate the condition from intracerebral hemorrhage, but the occurrence of focal signs and convulsions or coma at the onset favor the diagnosis of intracerebral hemorrhage.

#### PROGNOSIS

The prognosis should be guarded, for while it is not hopeless, it is grave.<sup>7</sup> Wechsler<sup>9</sup> found that these patients may die within a comparatively short time, but generally the symptoms recede over a period of days, and the patient recovers. In Ohler and Hurwitz's series,<sup>5</sup> the mortality rate after an initial attack was 50 per cent, while the rate in Neal's series<sup>15</sup> was 40 per cent. The prognosis depends on the underlying cause, the size of the ruptured vessel, and the extent of the bleeding. Globus<sup>7</sup> states that recurrence of bleeding is not uncommon. Focal signs,<sup>9</sup> if they occur, may or may not clear up completely. Hurwitz<sup>5</sup> found that there is no correlation between the white count and the mortality rate, and also that coma apparently adds to the gravity of the prognosis. McIver<sup>11</sup> feels that if the cases are recognized and proper treatment instituted, a great majority will recover. The clinical course may be either short, with the patient recovering in the course of several days, or it may be stormy and protracted, lasting over a period of weeks.<sup>4, 7</sup>

#### LUMBAR PUNCTURE

The therapeutic use of lumbar puncture in the treatment of spontaneous subarachnoid hemorrhage is the subject of much controversy. Wechsler<sup>9</sup> seems to stand alone in the published opinions when he states that repeated lumbar punctures are not necessary and may be harmful. Sharpe<sup>13</sup> seems to be the strongest advocate for lumbar puncture in that he advises frequent routine lumbar puncture and spinal drainage. Merritt<sup>1</sup> and Ohler and Hurwitz<sup>5</sup> advise repeated routine lumbar puncture, but at less frequent intervals than does Sharpe. Several advocate therapeutic lum-

bar puncture, but do not give a plan of treatment.<sup>4, 16</sup> Some<sup>7, 17</sup> advise repeated puncture when indicated by headache, mental state, advancing papilledema and a slow pulse rate. To the reviewer the last stated plan seems to be one deserving very serious consideration. Wechsler<sup>9</sup> advances no tangible reasons for opposing therapeutic lumbar puncture. In the neglected patient the increased intracranial pressure will frequently lead to death.<sup>4</sup> Merritt<sup>1</sup> states that there is no adequate physiologic basis for the hypothesis that removal of cerebrospinal fluid tends to increase hemorrhage, and empirically found this to be untrue. His idea is that the rapidity of return of symptoms is due to unusually rapid formation of cerebrospinal fluid resulting from meningeal irritation and an impaired absorption of fluid resulting from plugging of arachnoid villi. According to Sharpe,<sup>13</sup> repeated lumbar puncture and spinal drainage not only permit a more rapid recovery of physical, mental, and emotional functions of the patient, but the degree of improvement may be so increased that the ultimate recovery may approximate normality. In using therapeutic puncture, the pressure should be lowered to one-half of the rise from normal level. In every one of 19 cases Sharpe<sup>13</sup> noted that the blood percentage lessened in successive therapeutic punctures for spinal drainage. Strauss<sup>7</sup> states that the spinal fluid should be clear and colorless and the pressure normal before the patient may be regarded as recovered. It has been found<sup>1</sup> by the use of repeated therapeutic lumbar puncture, that the pressure is usually normal by the tenth to the twelfth day, and that the fluid is entirely normal by the fifteenth to the twentieth day.

#### CEREBRAL EMBOLISM

From necropsy reports, cerebral embolism represents from five to ten per cent<sup>1, 18</sup> of fatal cerebral vascular accidents. Embolism may occur at any age, but is found more often in the young.<sup>19</sup> Emboli are generally derived from vegetations on the heart valves<sup>20</sup> and from atrial thrombosis in the case of auricular fibrillation. It may

take origin from a thrombus dislodged in a larger cerebral vessel.<sup>9</sup> Howell<sup>6</sup> has noted the condition in the puerperal state.

Prodromal symptoms, such as headache and vomiting, are quite frequent. The onset, as a rule, is quite sudden.<sup>1</sup> Unconsciousness is not a necessary occurrence, and when present is more than likely due to basilar and carotid occlusions rather than blockage of other arteries. Evans<sup>18</sup> finds that it is not unusual for consciousness to be maintained in complete hemiplegia. According to Wechsler<sup>9</sup> when coma does occur, it is not generally deep or of long duration except when a large vessel is occluded. Focal signs are practically always present. Bizarre clinical pictures often result due to multiple emboli.<sup>1</sup> Secondary hemorrhage due to septic emboli may result.<sup>21</sup> Fever is apt to be high in the course of septic embolism.

The differential diagnosis is quite similar to that of cerebral thrombosis. The key to the situation is usually discovered on the examination of the heart. Bizarre clinical pictures may suggest a diagnosis of encephalitis, brain tumor, or brain abscess. The important points in the differential diagnosis are: (1) A septic type of temperature; (2) an abnormal heart; (3) a normal or only slightly elevated intracranial pressure; (4) negative serum and cerebrospinal fluid Wassermann reactions, and (5) a positive blood culture.

The prognosis is generally considered to be poor, due to the underlying cause.

It is agreed that the treatment, both immediate and from the standpoint of the neurologic defects in patients that recover from the initial insult, is the same as that in cerebral thrombosis or hemorrhage.

#### CEREBRAL THROMBOSIS

Contrary to previous opinion, it has become an established fact within recent years that thrombosis and not hemorrhage is the most common type of cerebral vascular lesion. An analysis of necropsy material shows a higher percentage of hemorrhages than thromboses, while an analysis of clinical material shows, as would be expected, a much higher incidence of cerebral thrombosis than of cerebral hemor-

rhage<sup>1</sup>; yet in Courville's series<sup>21</sup> of 15,000 autopsies, in which there were approximately 1,100 cerebral vascular accident cases, 569 were cerebral thrombosis and 388 were cases of cerebral hemorrhage. Merritt's series<sup>1</sup> of 600 clinical cases showed an incidence of 66 per cent for thrombosis and 21 per cent for hemorrhage.

Thrombosis is found most commonly in persons past middle life and in advanced age.<sup>9</sup> The short branches of the middle cerebral, the long branches of the middle cerebral, the anterior cerebral, the posterior cerebral, and the basilar arteries are involved in the order of frequency named. The thrombotic area may be the size of a pinhead or involve a whole hemisphere. The largest areas usually occur in thrombosis of the middle cerebral artery.<sup>9</sup>

Cerebral thrombosis is due primarily to pathologic alteration in the cerebral vessel walls with, in addition, a change in the rate of blood flow and the character of the blood.<sup>9</sup> Thrombosis is most common in cerebral arteriosclerosis or in conditions in which the intima of the artery undergoes atheromatous changes. Wechsler,<sup>9</sup> among others, has found that the next in frequency is syphilitic endarteritis, in which the lumen of the blood vessel is gradually narrowed until it is finally closed. Since cerebral thrombosis is quite frequent in patients with syphilis, both with and without an accompanying arteriosclerosis and hypertension, Merritt<sup>1</sup> believes that routinely the blood and spinal fluid of all young or middle aged patients with a cerebral thrombosis should be examined serologically for syphilis, regardless of whether or not arterial hypertension is present. Cerebral thrombosis can occur in polycythemia, leukemia, malaria, carbon monoxide poisoning, narcosis, and has been reported as occurring in thrombo-angiitis obliterans.<sup>9</sup>

#### CLINICAL COURSE

The clinical course of thrombosis differs considerably in the beginning from either hemorrhage or embolism. The symptoms may be transient or permanent, local or

general. Evans and Harding<sup>18</sup> have noted that thrombosis is characterized by a gradual onset with premonitory symptoms of tingling in the extremities, vertigo, and embarrassment of speech occurring some time prior to the paralysis, which may begin in a localized area and extend slowly to a partial or complete hemiplegia. If the lesion occurs during sleep, thrombosis should be strongly suspected.<sup>22</sup> In addition, Wechsler<sup>9</sup> finds that an attack is not generally accompanied by loss of consciousness in the beginning, and frequently the patient never loses consciousness. As thrombotic lesions frequently involve the small cerebral vessels, relatively minor symptoms and signs, such as dizziness, nausea, vomiting, headache, personality disorders, and memory defects, are more likely to occur than paralysis or disturbed consciousness. The spinal fluid in cerebral thrombosis, as in hemorrhage and embolism, is generally colorless and may show increase of pressure to 300 mm. of water or more, and contain increased globulin. Syphilitic endarteritis is not infrequently accompanied by a negative spinal fluid.<sup>9</sup>

It is hardly necessary here or in the discussion on cerebral hemorrhage to give a detailed description of the various focal manifestations that may occur with involvement of individual vessels or their branches. Not only are localizing signs well agreed upon, as is seen in standard textbooks on neurology, but also in cerebrovascular accidents of a spontaneous nature, these signs are of academic interest only. However, it is interesting to note that occlusion of the artery most commonly involved, the middle cerebral, gives rise to hemiplegia, anesthesia with astereognosis, and may cause aphasia. The entire posterior cerebral vessel may be occluded, with a visual field defect<sup>18</sup> being the only finding. Occlusion of the basilar and vertebral arteries results in the typical bulbar syndromes.<sup>9</sup>

It is worth noting that the general symptoms may, and frequently do, vary with the type of lesion and the focal signs are independent of it and merely point to

its location. During the acute stage there may be an interference with localization.

Alvarez<sup>23</sup> calls attention to the fact that he has on several occasions found gastrointestinal symptoms associated with, and on the basis of, a small cerebral thrombus which might have gone undiagnosed. He attributes the relationship to reflex disturbances in the gastrointestinal tract.

#### DIAGNOSIS, PROGNOSIS AND TREATMENT

Thrombosis, according to Howell,<sup>6</sup> is the accident most likely to occur when arterial disease is associated with low blood pressure. The differentiation between hemorrhage, thrombosis, and embolism frequently may be difficult. If the points given in the differential diagnosis of embolism (*v. s.*) are remembered, together with the fact that embolism in contrast to thrombosis is usually sudden in onset, one will have several excellent points to aid in their differentiation. Jelliffe and White<sup>19</sup> think that unconsciousness is less apt to occur with thrombosis, and that thrombosis is usually less immediately fatal than hemorrhage. Harding<sup>18</sup> feels that sudden hemiplegia, or monoplegia, in a young or middle aged individual, when valvular heart disease is not present, is likely to be due to syphilitic thrombosis. It is noteworthy that Jones<sup>24</sup> found that thrombosis occurred during sleep more than twice and embolism nearly three times as often as hemorrhage. In the discussion of cerebral hemorrhage, the differentiation from cerebral thrombosis will be taken up in detail.

Merritt<sup>1</sup> has noted that cerebral thrombosis is rarely fatal within 24 hours, and those persons who are destined to die usually do so only several days or weeks after the time of onset. Wechsler's clinical observations<sup>9</sup> have warranted the opinion that the outlook for life in thrombosis, except that occurring in the basilar artery, is generally better than that in hemorrhage. Newbill,<sup>25</sup> in a recent report from the Charity Hospital, found that the survival period of fatal cases of thrombosis averaged 15 times longer than that of hemorrhage or embolism.

With the exception of those cases occurring on a syphilitic basis, the treatment can be considered in the discussion on cerebral hemorrhage. In those cases of cerebral thrombosis occurring in association with proved syphilis, dramatic results cannot be expected, according to Merritt,<sup>1</sup> from the treatment of the lues, because most of the symptoms in such cases are due to softening of the brain tissue resulting from occlusion of the vessel. In the usual case the most that should be expected from antiluetic therapy is the possible prevention of further vascular lesions.

#### CEREBRAL HEMORRHAGE

The incidence of cerebral hemorrhage, as was stated in the series reported under the discussion on cerebral thrombosis (*v. s.*) is, contrary to former belief, definitely lower than that of cerebral thrombosis. Nevertheless, it is quite common, as will be noted.

Cerebral hemorrhage is invariably due to rupture of a vessel whose wall has undergone local and diffuse pathologic changes, and usually occurs past middle life. Diffuse cerebral arteriosclerosis may exist for a long time without leading to rupture of a vessel or, indeed, to any symptoms. There may be no diffuse arteriosclerotic changes, only one vessel showing typical changes which lead to hemorrhage into the brain.<sup>9</sup> With regard to pathogenesis of spontaneous intracerebral hemorrhage, current writers apparently favor the hypothesis advanced by Globus and Strauss<sup>26</sup> in 1927, which stated that cerebral hemorrhage represents a terminal phase in a sequence of events which have their beginning in a generalized or somewhat localized disease of the cerebral vessels and which results in the closure of one or more of such vessels in a given circumscribed area. This leads to the creation of an ischemic zone and a consequent focal encephalomalacia. With the production of such cerebral softening, an area of diminished resistance is created which is an important, if not a determining factor, in the causation of cerebral apoplexy. This seems to be an essential precursor to the

rupture of the vessel wall and the unhindered escape of blood. In explanation for cerebral hemorrhage occurring in cases of long-continued essential hypertension without evident arteriosclerosis, Chase<sup>27</sup> concluded that even large hemorrhages may occur in the brain by diapedesis from "terminal districts" and from the vasa vasorum of hypertrophied paralytic muscular arteries. Jelliffe and White<sup>19</sup> feel that exciting causes are of doubtful importance in precipitating cerebral hemorrhage, and in finding that the right and left hemispheres are about equally involved, they upset an old but unsubstantiated belief of right-side preponderance.

The commonest cause of cerebral hemorrhage is arteriosclerotic vascular change. Other common causes are syphilis (much more commonly associated with thrombosis), and generalized intoxications (as lead and alcohol).<sup>9</sup> Geiger<sup>28</sup> and others<sup>29, 30, 31</sup> have reported purpura hemorrhagica as a cause of cerebral hemorrhage. Marburg<sup>32</sup> has found that cerebral hemorrhages in youthful individuals are due to toxic, or toxic infectious, changes in the walls of the blood vessels. Harris<sup>33</sup> and Wechsler<sup>9</sup> are very definitely of the opinion that there undoubtedly exists an hereditary and familial tendency or constitutional predisposition to the development of cerebral hemorrhage.

#### SYMPTOMS

With few exceptions every case of cerebral apoplexy is ushered in by a stage of coma.<sup>9</sup> Premonitory symptoms<sup>34</sup> are not characteristic of the lesion; as a general rule they are recorded in the milder types of apoplexy in which the onset is not abrupt. Generally loss of consciousness is quite sudden,<sup>35</sup> deepens very rapidly, and attains its maximum in a short time. According to Cadwalder,<sup>34</sup> it is doubtful if hemorrhage ever occurs without causing very distinct disturbances of consciousness, but it is certain that many softenings on a thrombotic or embolic basis do occur without producing distinct apoplectic attacks. The pulse rate generally is slow and full. The pupils are either normal in size or



dilated, but do not react to light. The abolishment of the corneal reflex may be a very valuable early diagnostic sign in hemiplegia and is of great significance when no hemiplegia is evident or when the cause of coma is in doubt.<sup>9</sup> It is important to remember that the urine voided during an apoplectic stroke frequently contains albumin and sugar. Very early the superficial abdominal and the cremasteric reflexes are abolished on the paralyzed side. Although practically all forms of acute hemiplegia are flaccid in the beginning (generally up to six weeks) there is a rapid return of deep reflexes and soon they become hyperactive on the paralyzed side.<sup>9</sup> Permanently flaccid hemiplegia may rarely occur. Wilson<sup>4</sup> has observed that the sensation is not affected in the average case of hemiplegia, although it may be, if the thalamus or the posterior limb of the capsule is involved. Wilson<sup>4</sup> also points out that many cases of apoplexy occur in patients with low blood pressure.

Hemorrhage may occur in any part of the brain. According to Neely,<sup>36</sup> 60 per cent of cerebral hemorrhages are from the lenticulo-striate and lenticulo-ophthalmic arteries. The different vessels are involved in about the same order of frequency as listed under thrombosis (*v. s.*). It is worthy of mention that thalamic cases are frequently attended with marked coma which may be very protracted even in the absence of definite hemiplegic signs. Hemorrhage is rare in the cerebellum and rarest in the medulla.<sup>9</sup> The spinal fluid in intracerebral hemorrhage, as a rule, is the same as that found in thrombosis and embolism, according to Wechsler.<sup>9</sup> Neely<sup>36</sup> has stated that even patients with very extensive hemorrhages which are progressive until they cause death may not be associated with a marked increase in spinal fluid pressure.

*Intraventricular hemorrhage*, according to Oppenheim,<sup>37</sup> usually is the result of a neighboring hemorrhage which has broken through the ventricular wall and has filled all the cavities. Primary ventricular hemorrhage occurs only rarely. Gowers<sup>38</sup> feels that when primary ventricular hemorrhage

occurs it is due in most cases to rupture of miliary aneurysms, which have been found in the choroid plexus. Jelliffe and White<sup>19</sup> find that in cases of cerebrovascular accident that go into deep coma with marked rise in temperature (103-105°), with twitching or convulsive jerks, very slow or rarely rapid heart action, irregular and rapid breathing, and blood in lumbar puncture fluid, the hemorrhage has probably extended into the ventricles. Most authorities<sup>39</sup> acknowledge that a small number of cases of intraventricular hemorrhage recover, but death is usual within 24 hours.<sup>24</sup> Sands<sup>40</sup> had a case in which lumbar puncture did not reveal a bloody fluid and when the patient died one hour after onset of the symptoms a large blood clot filled the ventricular system. The prognosis is about 100 per cent fatal. Alpers<sup>41</sup> in 1924 reported a patient who recovered in whom frequent spinal drainage was used.

#### DIAGNOSIS

In the differential diagnosis of cerebral hemorrhage it is necessary to consider all conditions which may lead to stupor or coma. No doubt the diagnosis of uremia is made too frequently. It is important to emphasize that a patient suffering from brain tumor may have a hemiplegia of apoplectic suddenness due to a hemorrhage into the tumor.<sup>4</sup> McDonald<sup>42</sup> finds that cerebral embolism is more sudden and more dramatic in its onset than hemorrhage. By far the most important differentiation is between cerebral hemorrhage and cerebral thrombosis. Aring and Merritt's excellent article<sup>43</sup> on this subject will be used as the authority for most of the following statements. There is no one clinical sign that will differentiate the two. In the differentiation of cerebral hemorrhage and cerebral thrombosis, the type of onset is important. An onset with immediate unconsciousness is twice as frequent in hemorrhage as in thrombosis. Also convulsions at onset are more frequent with hemorrhage. Vomiting, if present at the onset, and, if embolism is excluded, is usually indicative of cerebral hemorrhage. Stiffness of the neck is an important differ-

ential sign between cerebral hemorrhage and cerebral thrombosis, for it is present in 55 per cent of cases of cerebral hemorrhage<sup>43</sup> and in only 7 per cent of cerebral thrombosis. The colloidal gold curve has no differential value in the diagnosis of these or other cerebral vascular lesions. Signs of progression after onset are more frequent in hemorrhage. The initial temperature, pulse and respiratory rates, are not of much value in the differentiation of cerebral hemorrhage and cerebral thrombosis.

Ernstene<sup>44</sup> emphasizes the fact that cerebral hemorrhage may be encountered in a relatively young person who presents no evidence of generalized vascular disease and in whom the blood pressure has been within normal limits.

#### PROGNOSIS

It is well to emphasize here the fact that cerebral hemorrhage rarely, if ever, is the cause of sudden death.<sup>9, 25, 43, 45, 46</sup> Cadwalder<sup>34</sup> thinks that large hemorrhages are always fatal. Jones<sup>24</sup> considers the immediate prognosis in hemorrhage much worse than in thrombosis. Robinson<sup>47</sup> concludes that, even though walled off, intracerebral hemorrhage is almost invariably fatal. He states that the brain does attempt to wall off pathologic foci. Jelliffe and White<sup>19</sup> list as unfavorable signs generalized convulsions, retinal hemorrhage, blood in the spinal fluid, and bilateral paralysis. After recovery from coma, continued fever, advancing symptoms, restlessness, delirium, or loss of sphincter control indicate a grave prognosis and probable death in from two to three weeks.<sup>48</sup> Wilson<sup>4</sup> reports a steadily rising temperature as an unfavorable sign. Wechsler<sup>9</sup> states that if the patient does not die in coma, the stupor lessens, reflexes reappear, non-paralyzed limbs are moved, the pulse quickens, and temperature rises for a day or two. A sharp fall of temperature is of grave prognostic significance. McDonald<sup>42</sup> states that coma lasting more than 48 hours is a very bad sign. Aring and Merritt<sup>43</sup> state that the usual findings in cases of any type of cerebral vascular le-

sion include a uniform rise of temperature, pulse rate, and respiratory rate several hours or days before death occurred.

With regard to the outlook for recovery from the most common neurologic finding, hemiplegia, a complete recovery is not to be expected when the coma is very deep and of long duration. If there is no sign of recovery in one week and no palpable return of power within a month, the outlook is bad. Conversely, early return of power within a few days speaks for rapid and complete recovery.<sup>9</sup> Jelliffe and White<sup>19</sup> report that hemiplegia, if total, is apt to persist, in some degree at least, although most patients are able to get about in three months or more. Partial recovery from helplessness persisting over six months or a year has been reported. Facial palsies usually disappear. Sachs<sup>49</sup> has observed that palsy of the leg is rarely as persistent as that of the arm. Aphasias are usually recovered from. Intelligence tests should be given in all cases of cerebral vascular accidents after the sensorium has cleared. Grave intelligence defects may occur, and according to McDonald,<sup>42</sup> some reduction in mental efficiency is frequently seen. Wechsler<sup>9</sup> emphasizes the important fact that many aphasiacs remain intelligent. Another point brought out by Wechsler<sup>9</sup> is that if hemiplegia recedes very rapidly the possibility of general paresis or multiple sclerosis should be borne in mind. The extensor of the fingers, as a rule, shows least return of function of any of the muscle groups involved in hemiplegia.

#### TREATMENT

The treatment of a patient with cerebral hemorrhage may be divided into the early, or immediate, treatment, and the late, or convalescent care. Measures of treatment, generally agreed upon, are slight elevation of the head, dehydration, mild sedatives for restlessness, careful feeding, and complete bed rest for at least three weeks after onset. There is some difference of opinion as to when to use venesection. All agree that obvious anemia contraindicates this procedure. Wilson<sup>4</sup> and Ernstene<sup>44</sup> believe in

its routine use in initial treatment. Jelliffe and White<sup>19</sup> reserve it for patients in very deep coma. Apparently the majority favor the opinions of Merritt,<sup>1</sup> Friedman<sup>50</sup> and Wechsler,<sup>9</sup> who feel that this procedure may be of value in plethoric individuals only. The question as to use of therapeutic lumbar puncture is far from settled, but even those who advocate it, as a rule, add a note of caution. A few representative opinions will be given. Jelliffe and White<sup>19</sup> feel that it is rarely called for except in supposed traumatic cases. McDonald<sup>42</sup> states that it may be dangerous. Merritt<sup>1</sup> is of the opinion that lumbar puncture is of doubtful value in the treatment of the average case of cerebral thrombosis or hemorrhage, but that it may be of value in relieving symptoms and signs of increased intracranial pressure. He states that punctures should be repeated in cases where large amounts of bloody fluid can be removed, e. g., intraventricular bleeding. Wechsler,<sup>9</sup> too, feels that intraventricular bleeding is an indication for repeated taps. Ernestene<sup>44</sup> and Sachs<sup>49</sup> believe that while spinal puncture is not without theoretical risks, careful removal of sufficient fluid to reduce the pressure is advisable.

Recent investigation on the function of the pyramidal tracts makes the outlook for re-education treatment of hemiplegia much more hopeful. It seems that the pyramidal tracts are not exclusive carriers of volitional motor control.<sup>51, 52, 53</sup> The indications are that there is a large extrarolandic motor area, probably in the frontal and parietal lobes, particularly for the face and upper extremities; so accessory pathways may be brought into play. Wechsler<sup>9</sup> finds that early attempts should be directed toward prevention of contractures and that after the first few weeks gentle massage may be begun and later passive movements of all joints. Merritt<sup>1</sup> is of the opinion that much is accomplished by efficient physio- and psychotherapy. Singer and Low<sup>54</sup> reported a patient with complete absence of the hinder parts of the second and third frontal convolutions who was able by persistent training ultimately to accomplish an almost unbelievable amount.

Treatment with electricity has been declared of doubtful or no value.<sup>1, 4, 19</sup>

Surgical procedures here, as in most other conditions, come in for consideration. Wechsler<sup>9</sup> declares that Foerster's operation of cutting posterior sensory roots to overcome spasticity is of limited worth, but may be employed in selected cases. Bagley<sup>55</sup> in 1932 reported cases and considered that superficially located lesions of cerebral hemorrhage may be helped surgically. He admits that it may be difficult to find the focus of bleeding. Suffice it to say that since the original article no further reports can be found. Adson and McK. Craig<sup>56</sup> made an interesting report of the successful removal of encapsulated intracerebral hemorrhage simulating brain tumor.

#### THE THERAPEUTIC USES OF IODIDES

Due to the prevalent use of iodides by the medical profession a paper on cerebral vascular accidents would not be complete without a discussion of the use of these drugs. Currently, authorities either do not mention it in their writing on therapy, or when they do mention it, a statement is added that there is probably no adequate basis for its employment. In an attempt to form an opinion on the usage of this drug in cerebral vascular accident cases based on present day concepts, one is forced to the single conclusion, namely, that iodide medication affords an excellent means for group (family) therapeutics.

#### SUMMARY

A review of the literature on spontaneous subarachnoid hemorrhage, cerebral embolism, cerebral thrombosis, and cerebral hemorrhage, has been presented. Particular emphasis has been placed on the differential diagnosis, prognosis, and treatment of these conditions. It is hoped that this presentation impresses the physician with the importance of diagnosing specifically the type of a cerebral vascular accident rather than labeling it "cerebral hemorrhage" or "cerebral accident."

#### REFERENCES

1. Merritt, H. H.: Diagnosis and treatment of vascular lesions in the brain, *Med. Clin. N. Am.*, 22:577, 1938.

2. Bramwell, B.: Spontaneous meningeal hemorrhage, *Edinburgh M. J.*, 32:101, 1886.
3. Quincke, H.: Die lumbal Punktion des Hydrocephalus, *Berlin klin. Wehnschr.*, 28:929, 1891.
4. Wilson, G.: *Musser's Internal Medicine*, ed. 3, Philadelphia, Lea & Febiger, 1938.
5. Ohler, W. R. and Hurwitz, D.: Spontaneous subarachnoid hemorrhage, *J. A. M. A.* 98:1856, 1932.
6. Howell, C. M. H.: Vascular accidents, *Brit. M. J.*, 1:255, 1937.
7. Strauss, I., Globus, J., and Ginsburg, S.: Spontaneous subarachnoid hemorrhage; its relation to aneurysms of cerebral blood vessels, *Arch. Neurol. & Psychiat.*, 27:1080, 1932.
8. Schmidt, M.: Intracranial aneurysms, *Brain*, 53:489, 1930.
9. Wechsler, I. S.: *Textbook of Clinical Neurology*, Philadelphia, W. B. Saunders Co., 1939.
10. Symonds, C. P.: Spontaneous subarachnoid hemorrhage, *Quart. J. Med.*, 18:93, 1924.
11. McIver, J., and Wilson, G.: Spontaneous subarachnoid hemorrhage, *J. A. M. A.*, 93:89, 1929.
12. Musser, J. H.: Leukocytes after hemorrhages, *Am. J. Med. Sci.*, 162:40, 1921.
13. Sharpe, W.: Repeated lumbar punctures of spinal drainage; diagnostic and therapeutic value in traumatic and allied lesions of the central nervous system, *J. A. M. A.*, 104:959, 1935.
14. Fremont-Smith, F. and Merritt, H. H.: *The Cerebrospinal Fluid*, Philadelphia, W. B. Saunders Co., 1937.
15. Neal, J. B.: Spontaneous meningeal hemorrhage, *J. A. M. A.*, 86:6, 1926.
16. Collier, J. S.: *A Textbook of the Practice of Medicine*, Edited by Price, London, 1922, p. 1351.
17. Bagley, C., Jr.: Blood in cerebrospinal fluid, *Arch. Surg.*, 17:18, 1928.
18. Evans, H., and Harding, G. T.: "Stroke" without paralysis; problem of diagnosis, *Ohio State M. J.*, 34:768, 1938.
19. Jelliffe, S. E., and White, W. A.: *Diseases of the Nervous System*, ed. 6, Philadelphia, Lea & Febiger, 1935.
20. Krinsky, C., and Merritt, H. H.: Neurological complications of subacute bacterial endocarditis, *New England J. Med.*, 218:563, 1938.
21. Courville, C. B.: *Pathology of the Central Nervous System*, Mountain View, Calif., Pacific Press Pub. Assn., 1937, p. 70.
22. Osler, W., and McCrae, T.: *Principles and Practice of Medicine*, ed. 12, New York, Appleton-Century Co., 1935.
23. Alvarez, W. C.: Small unrecognized strokes cause of puzzling indigestion, *Proc. Staff Meet. Mayo Clin.*, 10:293, 1935.
24. Jones, E. A.: Onset of hemiplegia in vascular lesions, *Brain*, 28:527, 1905.
25. Newbill, H. P.: The duration of life after cerebrovascular accidents in adults, *J. A. M. A.*, 114:236, 1940.
26. Globus, J., and Strauss, I.: Massive cerebral hemorrhage, *Arch. Neurol. & Psychiat.*, 18:215, 1927.
27. Chase, W. H.: Hypertensive apoplexy and its causation, *Arch. Neurol. & Psychiat.*, 38:1176, 1937.
28. Geiger, A. J.: Purpura hemorrhagica with cerebrospinal hemorrhage: report of two cases, *J. A. M. A.*, 102:1000, 1934.
29. Garvey, P. H., and Stephens, D. J.: Purpura hemorrhagica with intracranial hemorrhage, *N. Y. State J. Med.*, 36:97, 1936.
30. Gordon, A.: Central nervous system in purpura hemorrhagica, *J. Nerv. & Ment. Dis.*, 50:144, 1919.
31. Jones, H., and Tocantines, L.: Treatment of purpura hemorrhagica, *J. A. M. A.*, 100:83, 1933.
32. Marburg, O.: Zur Frage der Haemorrhagia Cerebri bei Menschen und deren differentieller Diagnose, *Deutsche Zeitschr. f. Nerven.*, 105:22, 1928.
33. Harris, W.: *Stroke*, Practitioner, 140:381, 1938.
34. Cadwalder, W. B.: A comparison of the onset and the character of the apoplexy caused by cerebral hemorrhage and by vascular occlusion, *J. A. M. A.*, 62:1385, 1914.
35. Sands, I. J.: Anatomic basis of clinical manifestations of cerebral vascular disorders, *J. A. M. A.*, 99:1599, 1932.
36. Neely, J. W.: Immediate spinal puncture for apoplexy, *Tri-State Med. J.*, 6:1181, 1933.
37. Oppenheim, H.: *Lehrbuch der Nervenkrankheiten*, ed. 7, Berlin, S. Karger, 1923.
38. Gowers, W. R.: *Manual of Disease of the Nervous System*, Vol. II, Philadelphia, P. Blakiston Co., 1903.
39. Lannin, G. E. J.: Hemorrhage into the lateral ventricle: recovery, *Canad. J. Med. & Surg.*, 38:119, 1915.
40. Lederer, M., and Sands, I. J.: Intraventricular hemorrhage, *J. Nerv. & Ment. Dis.*, 65:360, 1927.
41. Alpers, B. J.: Ventricular hemorrhage with recovery, *Arch. Neurol. & Psychiat.*, 12:695, 1924.
42. McDonald, R. H.: Diagnosis and treatment of cerebral vascular accidents in arteriosclerosis, *Med. Clin. N. Am.*, 22:479, 1938.
43. Aring, C. D., and Merritt, H. H.: Differential diagnosis between cerebral hemorrhage and cerebral thrombosis, *Arch. Int. Med.*, 56:435, 1935.
44. Ernestene, A. C.: Treatment of cerebral hemorrhage, *Surg. Clin. N. Am.*, 17:1431, 1937.
45. Spiller, W. G.: The duration of life after extensive hemorrhage of the brain, *J. A. M. A.*, 51:2101, 1908.
46. Maloney, M. F.: Sixty cases of sudden or violent death, *Dublin J. Med. Sci.*, 1921.
47. Robinson, G. W.: Encapsulated brain hemorrhages, *Arch. Neurol. & Psychiat.*, 27:1441, 1932.
48. Perkins, O. C.: Apoplexy, *Ann. Int. Med.*, 6:1386, 1933.
49. Sachs, B.: Apoplexy, *Bull. N. Y. Acad. Med.*, 4:1250, 1928.
50. Friedman, E. D.: *Cecil's Textbook of Medicine*, ed. 4, Philadelphia, W. B. Saunders Co.
51. Fulton, J. F., and Viets, H. R.: Upper motor neuron lesions, *J. A. M. A.*, 104:357, 1935.
52. Bucy, P. C.: Relation of cyto-architecture of the frontal lobes of primates to functional activity, *Arch. Neurol. & Psychiat.*, 33:546, 1935.
53. Kennard, M. A.: Corticospinal fibers arising in the premotor area of the monkey, as demonstrated by the Marchi method, *Arch. Neurol. & Psychiat.*, 33:698, 1935.
54. Singer, H. D., and Low, A. A.: Brain in a case of motor aphasia in which improvement occurred with training, *Arch. Neurol. & Psychiat.*, 29:162, 1933.
55. Bagley, C., Jr.: Spontaneous cerebral hemorrhage: discussion of four types with surgical considerations, *Arch. Neurol. & Psychiat.*, 27:1133, 1932.
56. Adson, A. W., and McK. Craig, W.: Spontaneous intracerebral hemorrhage: etiology and surgical treatment, *Arch. Neurol. & Psychiat.*, 35:701, 1936.

—o—

## VINCENT'S CERVICITIS\*

JAMES P. QUINDLEN, M. D.

AND

LEON TAUBENHAUS, M. D.

BROOKLYN, N. Y.

Although the fusiform bacilli and spirochetes of Vincent are commonly found in the oral cavity, disease due to these organisms in other sites is comparatively rare. Weaver and Tunnicliff have established

\*From the Gynecological Service of Dr. Joseph L. McGoldrick, Kings County Hospital, Brooklyn, New York.

that Vincent's organisms may locate symbiotically and ontogenetically on other sites than the mouth and may give rise to symptoms in these sites. Vincent's infection of the genital tract is a very rare occurrence.

Pilot<sup>1</sup> was able to find the fusiform bacilli and spirochetes in the smegma of 58 per cent of normal women, but in none of his patients were organisms found in the vaginal tract. He reports one case of a nine year old girl complaining of a foul-smelling, sanguino-purulent vaginal discharge of three months' duration. On examination he found a hairpin in the vagina. A smear of the discharge showed many spirochetes and fusiform bacilli along with other organisms. Arnold<sup>2</sup> reports a case of Vincent's infection of the vagina in a 35 year old woman following a Vincent's gingivitis.

#### CASE REPORT

A. G., a 36 year old colored female, was admitted into Kings County Hospital on the night of June 30, 1938, complaining of severe pelvic and lower abdominal pain which had been present since the onset of her menstrual period six days previously.

Her menstruation began at the age of 18, was regular, of the 30 day cycle, and each period lasted three days except the present one which was in its sixth day. She always had low abdominal pain and discomfort throughout each period. Although no contraceptives were used, she had never become pregnant. She was a known luetic under active treatment, and had received injections of neoarsphenamine at weekly intervals for ten weeks prior to her present admission.

Physical examination revealed a well developed colored female who did not appear to be acutely ill. The abdomen was tender throughout, but there was no rigidity or rebound tenderness. There was a scant, bloody vaginal discharge. On bimanual examination the cervix was enlarged, smooth, hard, and on its surface shallow, crater-like irregularities could be felt. It was exquisitely tender to manipulation. The uterus felt normal, and the adnexae felt full and tender. On inspection the cervix appeared to be markedly ulcerated, the ulcers being covered with a moist, dirty, gray, foul-smelling membrane that would not peel off with ease. The membrane had spread to cover a considerable portion of the vaginal mucosa of the cervix, but the adjacent lateral walls of the vagina were not involved. Smears and darkfield examinations of this membrane were positive for Vincent's organisms. The Wassermann and gonococcus fixation reactions were also positive.

After further questioning, the patient admitted that her husband utilized his saliva as a lubricant for intercourse. Smears and darkfield examinations were then made from the gums of the patient and her husband and both were positive for Vincent's organisms although no macroscopic ulcerative lesions were noted in their oral cavities.

On July 1, 1938, the cervix was painted with a two per cent aqueous solution of gentian violet, and at two hour intervals, one ounce of hydrogen peroxide was instilled into the posterior vagina through a rubber catheter. The cervix was repainted with gentian violet once or twice daily and the peroxide instillations were continued. Each time the cervix was painted as much of the membrane as possible was removed.

Thirty-six hours after admission the patient had shown marked symptomatic improvement. The abdominal pain had markedly diminished and the cervical tenderness had decreased. There was no new membrane formation, and the underlying inflammation seemed to be subsiding. By the next day the cervical lesions appeared to be smaller and more discreet. The subsequent course was one of progressive improvement.

On July 12, twelve days after admission, there was no cervical tenderness. All the membrane had disappeared, and the remaining ulcerated areas had a clean, granulating base. On the advice of our Dental Department the gentian violet applications and peroxide instillations were discontinued because of the belief that their optimum effect had been reached. The cervix was then painted with a two per cent solution of arsphenamine in glycerine at intervals of one to two days.

On July 21, three weeks after admission, there was no evidence of the infection noted. The cervix had a normal appearance and the cervical smears had been repeatedly negative for a week. The patient was discharged as cured and advised to discontinue the use of saliva as a lubricant for intercourse.

Unfortunately, we have been unable to follow up this patient since her discharge from the hospital.

#### COMMENT

This case presents, aside from its rarity, several very interesting features. First is the mode of transmission. While the evidence is not conclusive, it is reasonable to believe that in this case the Vincent's organisms were introduced during intercourse through the husband's saliva. The habit of using saliva as a lubricant for intercourse is not uncommon. Since observing this patient, whenever the opportunity presented itself, we have tactfully questioned a number of clinic patients concerning this

practice and find that it is by no means rare. With the frequency of Vincent's gingivitis among these people it is surprising that genital lesions are not seen more often. Apparently there are other factors which predispose to the infection. In this case it may have been the lowered resistance offered by the menstrual period.

While the treatment in this case was quite satisfactory, undoubtedly any other of the standard treatments for Vincent's infection would have worked as well. We feel, however, that the instillation of hydrogen peroxide into the posterior vagina at frequent intervals is particularly suited to this type of case as it allows continuous oxygenation of the vaginal cavity, and thus tends to prevent further progress of the anerobic Vincent's infection.

Another interesting feature in this case is the fact that although the patient had received ten injections of neoarsphenamine,

a drug supposedly specific against the organisms of Vincent, she developed this infection. It was for this reason that arsenicals were not used earlier in the case.

#### SUMMARY

1. A case of Vincent's infection of the cervix is presented.

2. The history of use of saliva from infected gums as a lubricant for intercourse suggests a mode of transmission from the oral to the vaginal cavity.

3. The case was successfully treated by topical applications of gentian violet and instillations of hydrogen peroxide into the posterior vagina. When the acute symptoms had subsided, topical applications of arsphenamine were used.

#### REFERENCES

1. Pilot, I.: The occurrence of fusiform bacilli and spirochetes associated with a foreign body in the vagina, *Am. J. Obst. & Gynec.*, 18:824, 1929.
2. Arnold, C. H.: Plaut-Vincent's infection of the vagina: Report of a case, *J. A. M. A.*, 95:1461, 1930.

## THE TREATMENT OF TULAREMIA WITH THE THIAZOLE DERIVATIVES OF SULFANILAMIDE

J. O. WEILBAECHER, JR., M.D.†

AND

EMMA S. MOSS, M.D.†

NEW ORLEANS

During the past winter we have observed a group of unusually severe cases of tularemia.

The observation of a patient with extensive infection involving both lungs who had not responded to treatment with sulfapyridine and sulfanilamide prompted us to determine the efficacy of sulfamethylthiazol. The marked improvement of the patient within four days after institution of treatment was striking.

We thus felt justified in further clinical

trial and are making a preliminary report of our results in five cases.

#### CASE NO. 1

C. D., a 24 year old negro was admitted to the Charity Hospital of Louisiana at New Orleans on December 3, 1939, with cough and fever of five days' duration. He had a temperature of 103.4°F. and x-ray evidence of consolidation of the lower lobe of the left lung. Therapy with sulfapyridine was started although repeated examinations of sputum did not reveal pneumococci. In spite of the fact that blood levels of free sulfapyridine varied from 4 to 6 mg. per 100 c. c., the patient's condition became progressively worse and there was extension of infection to the right lung. Sodium sulfapyridine was then additionally given intravenously in a dosage of 4 grams once daily. After treatment with sulfapyridine had been continued for eight days and with sulfanilamide for five days without any improvement in the patient's condition, therapy with sulfamethylthiazol was instituted. By this time a diagnosis of tularemia had been established by inoculation into guinea pigs of blood, sputum and material obtained by lung puncture. His temperature was 105° and his pulse rate 160 per minute. He was stuporous and definite jaundice was present. Within four days after the latter drug was given, marked improvement in his general condition was noted, with a falling temperature which reached 99° by the sixth day

†From the Departments of Medicine and Pathology and Bacteriology of Louisiana State University School of Medicine and the Charity Hospital of Louisiana at New Orleans.

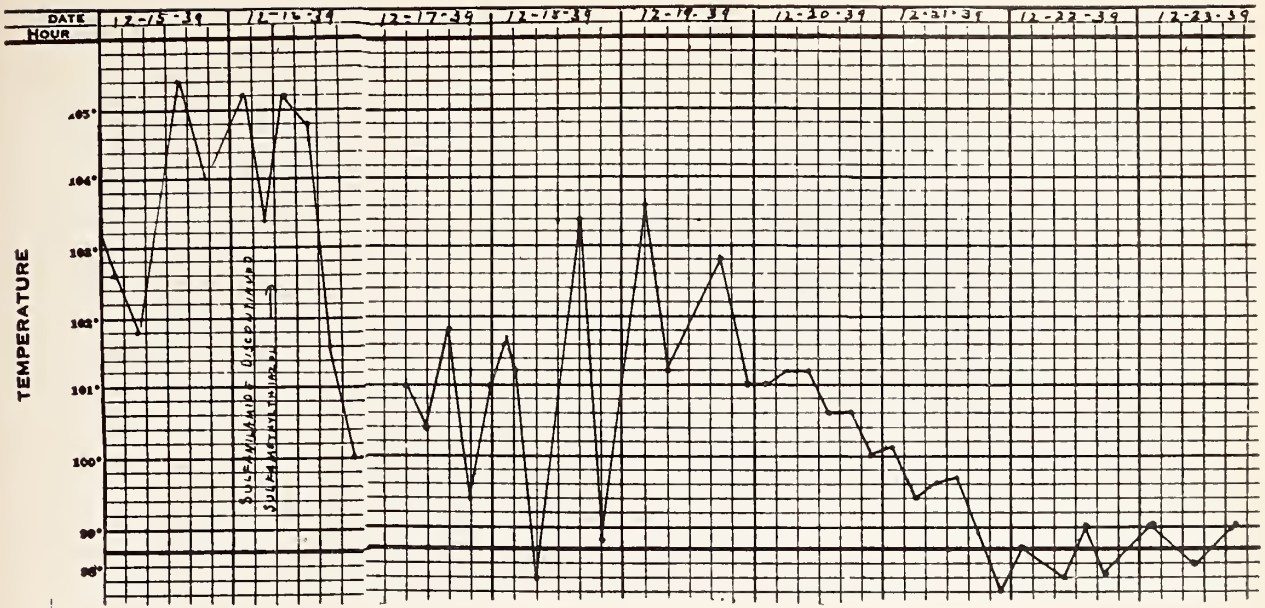


Fig. 1. Case 1. Temperature curve beginning on day before therapy with sulfamethylthiazol was instituted. At the time condition of the patient was considered critical.

(fig. 1). Recovery was uneventful. A total of 67 grams of sulfamethylthiazol was given over a period of 15 days without any evidence of toxic effects.

#### COMMENT

This patient had a very severe type of tularemic pneumonia with septicemia as evidenced by positive guinea pig inoculations of blood, sputum and material obtained by lung puncture. The rapid improvement within four days seemed to indicate that this drug was definitely beneficial.

#### CASE NO. 2

A. R., a 61 year old colored female was admitted on December 15, 1939, complaining of pains in the left hand and elbow. After cleaning rabbits on November 23, 1939, she developed a sore on her left hand which was accompanied by regional epitrochlear lymphadenopathy and fever. A diagnosis of tularemia was established from the above findings and a positive blood agglutination for *P. tularensis* in a dilution of 1:160. An x-ray of the lungs did not reveal any pulmonary involvement. Sulfanilamide was given for five days with no apparent clinical improvement and therapy with sulfamethylthiazol was then instituted. Fourteen grams of the drug were given during a period of 60 hours. The temperature fell to normal within 12 hours. Recovery was uneventful.

#### COMMENT

This case represented a mild type of ulceroglandular tularemia without complications, that responded to drug therapy.

#### CASE NO. 3

T. B., a 30 year old white male was admitted on January 7, 1940 complaining of pain in the

chest, cough and headache. He had an ulcerated lesion on the middle finger of the right hand with regional epitrochlear and axillary lymphadenopathy. X-ray examination revealed several small areas of consolidation in the lower lobes of both lungs. There was a history of handling rabbits four days prior to the onset of his illness. The diagnosis of tularemia was established by repeated blood agglutinations for *P. tularensis* in a dilution of 1:640 and a positive intradermal test with Foshay's tularensis antigen.

Treatment with sulfamethylthiazol was instituted on the seventh day of hospitalization and was followed by marked response within 24 hours as shown on the accompanying chart (fig. 2).

Although the fever had subsided, drug therapy was continued in full dosage because of persistent lymphadenopathy. On the ninth day of treatment the patient developed a granulocytopenia and a diffuse maculopapular eruption over the abdomen, back and thighs. The total white blood cell count was 9,750 per cubic millimeter, 32 per cent of which were neutrophils. The drug was discontinued. The rash disappeared in forty-eight hours and the white blood cell count returned to normal within four days. Recovery was uneventful and complete. A total of 97 grams of the drug had been given.

#### COMMENT

The marked clinical response in this case is shown by the fever curve. The toxic rash and granulocytopenia developed after nine days of treatment with massive dosage. These toxic effects were transient and disappeared when the drug was discontinued.

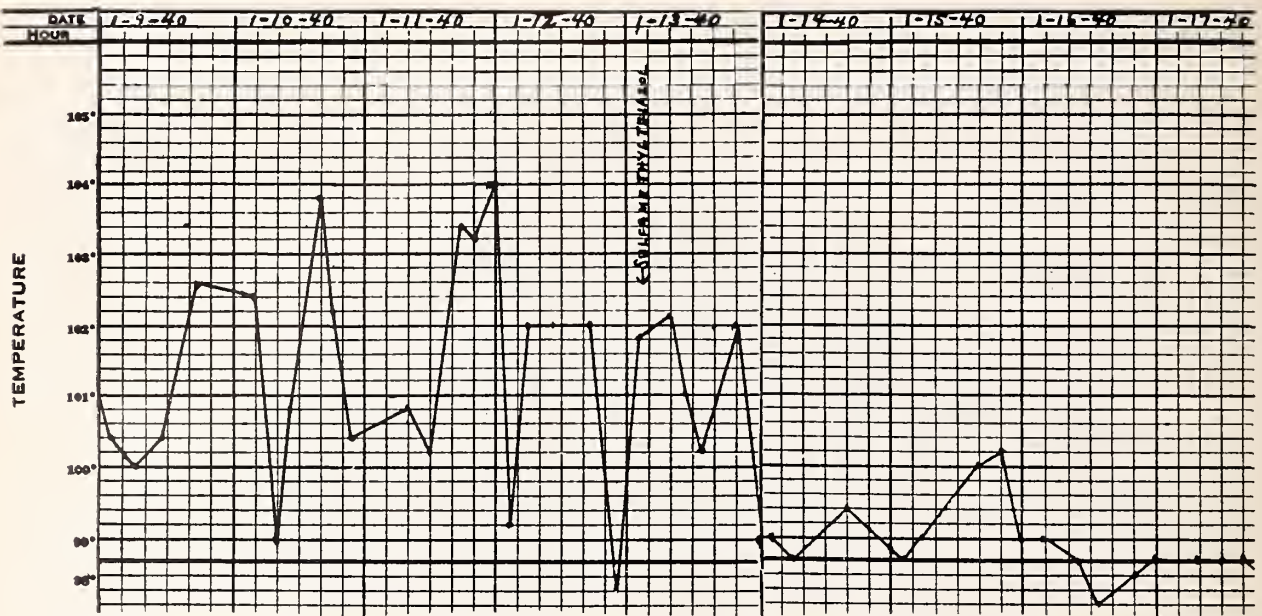


Fig. 2. Case 2. Temperature curve is shown to demonstrate typical curve for several days preceding the administration of sulfamethylthiazol. This curve and that of case 1 are temperature charts of patients who showed the best response to sulfamethylthiazol therapy.

#### CASE NO. 4

M. G., a 26 year old negro was admitted on January 16, 1940, complaining of chest pain, fever and cough. He had fever of 102° F., and x-ray evidence of consolidation of the lower lobe of the right lung and an area of pneumonitis in the lower lobe of the left. Type X pneumococci were demonstrated in the sputum. He was given 100,000 units of anti-pneumococcal rabbit serum intravenously and started on full doses of sulfapyridine. Within twenty-four hours his temperature dropped to 99° but rose again to 103° and his condition became progressively worse. Blood agglutinations for *P. tularensis* were positive in a dilution of 1:640. After twelve days of therapy with sulfapyridine blood levels of 6 to 7.5 mgm. having been maintained, he showed no response and was in a stuporous condition. Sulfamethylthiazol was then given in one gram doses every four hours following the initial doses of two grams each. He received a total of 30 grams of the drug over a period of six days with no apparent response. Jaundice was noted on February 1, 1940, four days after the drug was started. He did not receive any drug after February 2, 1940, because the supply had become exhausted. He expired on February 4, 1940, and on postmortem examination was found to have extensive tularemic lesions in both lungs, liver, spleen, abdominal and hilar lymph nodes. The etiology of these lesions was proved by guinea pig inoculation.

#### COMMENT

This patient had a severe type of tularemia. Although there seems to have been a coincidental pneumococcal pneumonia, subsequent clinical and postmortem find-

ings proved the presence of tularemia. It is probable that the jaundice occurred as part of the terminal picture of the infection. Treatment with sulfamethylthiazol was started late in the disease and was given in relatively small dosage.

#### CASE NO. 5

D. S., a 30 year old negro was admitted on January 18, 1940, complaining of severe pain in the chest, cough and fever of nine days' duration. He had a temperature of 103° F. and x-ray evidence of an area of consolidation in the upper lobe of the left lung. His employment in a market where he skinned rabbits suggested the possibility of tularemia which was verified by a positive blood agglutination for *P. tularensis*, in a dilution of 1:640, a positive intradermal test with Foshay's tularensis antigen and by guinea pig inoculation with material obtained by lung puncture. On the ninth day in the hospital, the eighteenth day of his illness, treatment with sulfathiazol was instituted. After 25 grams of the drug was administered during a 60 hour period of time, there was noted a marked granulocytopenia, the neutrophils dropping to 15 per cent of the total white blood count of 7,800 per cu. mm. There had occurred, however, a definite clinical improvement with a drop in temperature to 100.2° F.

The drug was discontinued and the neutrophils rose daily to reach normal levels in three days. There was continued clinical improvement, the fever remaining below 100°. Pulmonary infection persisted, however, as shown by x-ray study and low grade fever.



## COMMENT

This case represented a moderately severe type of tularemia which responded to the use of sulfathiazol. However, he developed a toxic reaction as evidenced by granulocytopenia necessitating discontinuance of drug therapy after only 60 hours of treatment.

## DISCUSSION

The usual routine of treatment consisted in the administration of 1 gram of the drug at four hour intervals with the exception of two or more initial doses of 2 grams each. Urinalyses and blood cell counts were performed daily. Granulocytopenia was observed in two cases and a toxic drug rash in one. These toxic effects subsided rapidly after discontinuance of the drug. Although jaundice developed in case 4 several days after drug therapy was instituted, we believe that it was a result of the infection. We have observed jaundice in other severe cases of tularemia which were not treated with these drugs.

In our opinion the definite response of four of these cases to treatment with sulfamethylthiazol\* and sulfathiazol justify the further use of these drugs in the treatment of tularemia.

\*The drugs used in this study were supplied by the Medical Research Department of the Winthrop Chemical Company.

## MODERN MEDICAL ILLUSTRATING\*

TOM JONES†  
CHICAGO, ILL.

Lest the title of this paper imply a discussion of the technical aspects of medical illustration, I would like to relieve your mind at the outset and assure you that what I have to say will be confined to the subject in its broader sense only. Mr. Max Brodel, dean of medical artists, once said that we would have better pictures if doctors knew more about art and artists more about medicine. At any rate, we have a lot of common interests and it is about these that

\*Read before the Orleans Parish Medical Society, February 12, 1940.

†From the Illustration Studios, University of Illinois Colleges of Medicine and Dentistry, Chicago.

I would speak. No consideration of medical illustration should be attempted without acknowledging that its existence, as we know it today, is due to the development of photo-engraving which did away for all time with the painfully wrought, stiff woodcuts of the last generation. Some of you here can recall from your student days these old pictures in the early editions of Gray's Anatomy and Ashhurst's Surgery. Although photo-engraving provided machinery for the printing of pictures, two other factors have accelerated their wide use today. One of these is the realization of the value of visual education; the other is the increased speed of living—the swift tempo of our times. The busy practitioners of medicine these days have little leisure for the reading of page after page of unrelieved descriptive text, the meaning of which can often be more precisely conveyed in pictures, and in a fraction of the time. However we may at times deplore the passing of the peaceful times when life was less complicated, we'll admit that illustrations have become a mighty factor in the teaching and dissemination of medical knowledge. Indeed, book publishers and journal editors are so well aware of this that it has become an important consideration in the acceptance of manuscripts. Many an otherwise good book of recent years has languished and died from lack of proper illustrating. The editors of the Wistar Institute journals say in their booklet on advice to authors: "Graphic representation of structural conditions is often the best and sometimes the only way to present facts." To this I may add the old Chinese adage: "One picture is better than a thousand words."

Perhaps the best definition of the word "illustration" is "that which illustrates." Its meaning is sometimes lost sight of by those of our profession. As I look back across much of my own work extending now over a period of 36 years, I am aghast at the evidence that this simple fact did not seem to occur to me earlier.

## REQUISITES FOR GOOD MEDICAL ILLUSTRATIONS

What, then, are the factors which enter into the making of a good medical illustra-

tion? First, a thorough understanding of the subject to be illustrated. Second, design, and by design I mean the arrangement of the parts of a picture which best convey the meaning quickly, accurately and pleasantly. Without the quality of design no illustration—be it drawing, photograph or chart, can properly fulfil its function. Then it must have the golden quality of simplicity. It must be free from all detail and evidences of labor which do not contribute to its meaning. It must be honest and accurate. In a word, it must illustrate. Here may I remind you that the original of an illustration is of little value in itself. It is the reproduction, the result on the printed page which counts. This obvious fact is often lost sight of because we do not take into consideration the suitability of a picture for reproduction. Many authors are made sad by seeing the pictures which they sent to the publisher and which were so beautiful to them at the time, appear finally much reduced in size, anemic in appearance, and vague in meaning. The experienced medical artist early learns that he must do his work with the printed result constantly in mind. He learns that it must be made with a vigilant eye as to what will happen in the engraving room, and to allow for certain losses due to reduction in size and the vicissitudes of engraving and printing.

If one contemplates the elaborate and mysterious process through which an illustration must pass on its journey from the author to the printed page, he may marvel that the result is recognizable. It would probably bore you were I to attempt to describe this in detail. It might be interesting, however, to follow briefly a typical journal article which has been accepted for publication and illustrated, let us say, with a pen and ink drawing and a photograph. First, the author's pictures are marked in the editorial office for size of the finished cut, type of engraving, e.g., half-tone or line, and then sent to the engraver. Here they are marked for size of screen and type of finish, according to the quality of paper upon which they will be printed. The photograph is placed in front of a large camera and photographed

through an interposed screen made of minute lines drawn at right angles to each other on glass. The number of these lines to the inch determines the fineness of detail in the reproduction. The purpose of this screen is to break up the picture into dots thereby producing a surface which can be inked and printed. The negative film so obtained is now transferred to a thin plate of copper which passes through several intricate chemical processes during which the image becomes delicately etched in the metal. After this plate has been tacked upon a block of wood it receives certain finishing touches which are done by hand under a magnifying glass. Several proofs are finally struck off on a hand press and sent to the editor of the journal, who in turn may send one to the author with the galley proof of his text. After corrections are made, if any, it is ready for the printing press. This is known as the half-tone process and is the one used in reproducing all drawings which are done with a complete scale of tones, such as wash drawings, photographs, and radiographs. About 65 per cent of the pictures in our American journals are reproduced in this way.

Our author's other picture, the pen and ink drawing, undergoes a process similar to the photograph except that it is somewhat simpler and no screen is used in photographing it. The finished film is etched on a zinc plate instead of copper, although for the finest grades of work copper is sometimes used.

This is "line engraving" and is the method used to reproduce drawings in pen and ink, graphs and all material which has been rendered in pure black and white. It has many virtues and although more limited than the half-tone it is more economical and can be printed on almost any kind of paper. About one-third of our illustrations are engraved by this line process. Plus the 65 per cent of half-tones, these two methods constitute about 98 per cent of all pictures in American medical publications. The remaining two per cent will be divided between color engraving and the more costly forms of black and white reproduction, such as lithography, heliotype and photogravure.

## COLORED ILLUSTRATIONS

Medical pictures in color are exceedingly desirable. In many ways it is the ideal type of illustration for depicting pathologic changes, both gross and microscopic, as well as in differentiating anatomic structures. Although black and white is adequate for the great mass of pictures and has a superiority and charm of its own, in many cases, certainly where maximum realism is desired, full color pictures are supreme. A colored illustration is almost as easily made by the artist as one in black and white and can be reproduced without any particular difficulty. The great drawback is the cost. I am sure that most journal and book publishers would encourage the use of color illustrations if they could afford to print them. As it is, many journals such as the *Journal of the American Medical Association* will not use them at all. Others, such as *Surgery, Gynecology and Obstetrics*, will use them at times with an arrangement whereby the author will bear all or part of the extra expense. This cost to the author alone is not inconsiderable and usually runs from \$200.00 up for a single picture. We medical illustrators try to explain this to our customers when they come to us excited and enthusiastic about a nice polychromatic tumor they have just removed. Needless to say, the drawing is usually made in black and white, albeit with regret by both of us. All of this may sound discouraging to the author, because there are many instances in which color is necessary, but facts are facts and we must be guided accordingly. It has been my experience that in spite of the high cost, medical book publishers generally use as many colored illustrations as they can without increasing the cost of their product. The question is often asked, "Why do the foreign books and journals have so many more colored illustrations than ours?" The answer is cost of labor. We have to pay our workers in the engraving and printing trades much higher wages than they do abroad. The plates alone for a single colored picture costing a European publisher say \$50.00 would cost an American publisher around \$150.00.

May I now present a few practical considerations about the everyday problems in medical illustration. A while ago I mentioned some of the qualities which a good picture must possess. In addition to these qualities, there must be one thing more, proper labeling. One sees year after year many drawings, photographs and charts in our journals and books inadequately and poorly labeled. Perhaps the reason for this is that we too often publish illustrations predicated on the fallacy that the readers are as familiar with the subjects as we are and their intelligence must not be insulted by labels. The contrary is true. There is every evidence that the reader appreciates good labeling. It helps to make the picture understandable and like the illustration itself is evidence of the care and accuracy of the author's methods. Often even a word, letter, or arrow on a photograph or radiograph adds meaning and significance to a picture which would otherwise have dubious value to the reader. Labeling is no mean art. It requires judgment and skill, and when properly done, often adds to the appearance of a picture. By the same token, bad labeling can spoil a good picture. Graphs and charts are dependent upon good labeling to a greater degree than any other class of illustrations. They are by their nature usually rather drab and monotonous in appearance, but designed and lettered by an expert they become lucid and interesting and are much more apt to invite study.

## PHOTOGRAPHY

Perhaps the most backward and undeveloped division of medical illustration today is photography. We artists have a lot to learn, but the average medical photographer has still more. Anyone at all critical, scanning our medical journals, must be conscious of the large percentage of photographs too dark, too light, badly composed, vague and confusing. The editors and publishers realize this but there is not much they can do about it. Improvement must come from higher standards at the source, through better trained photographers and more critical authors. We have already made a start in this direction and in some of our institutions routine medical photog-

raphy has reached a high state of excellence. I think I may say that an example of this is at my own school (Illinois) where, as a result of constant experimentation and much experience with a wide variety of material, very high standards now prevail. True medical photography is a definite specialty and one not easily learned. It is an exacting profession and requires training and certain qualities far beyond that of the portrait or commercial photographer. A good medical photographer is a craftsman of the first order. He has, to his work, much of the critical attitude of an able medical artist—and he is not content to let work leave the studio unless it measures up to the highest standards.

Of course, the services of a trained medical photographer are not always available, but even the amateur should remember that a photograph intended for reproduction should be sharply focused and the subject so lighted that its form and surface texture are recorded truthfully. Care should be taken that the background be simple and of contrasting tone, if possible, not as one so often sees, cluttered up with laboratory paraphernalia, half open doors and smiling nurses.

I would like to extend these remarks to cover motion picture photography in medicine, but it is too big a field to comment on more than briefly. Perhaps it is sufficient to mention a few points which a good many years of experience and inquiry have taught me:

(1) Medical motion pictures have not supplanted or materially affected any other teaching medium. They exist in their own right as a valuable addition to the machinery of teaching.

(2) An unfortunately large percentage of amateur and some professional medical movies have little sound teaching merit and are woefully time-consuming.

(3) Their entertainment value should not be confused with their teaching value—there is a big difference.

(4) As a teaching medium, motion pictures are valuable in direct proportion to their ability to show facts which cannot otherwise be demonstrated.

#### RADIOGRAPHS

I am sure that if the collective voice of the medical editors could be heard on this point, it would say something as follows: "Send in no prints for publication unless they are very good and unless they can stand reduction and dimming due to the half-tone screen." It is unfortunate that authors do not realize the importance of this. They seem prompted more by their enthusiasm as they look at the film in the shadow-box under perfect conditions than by its suitability for the printed illustration. Unless your radiographic print will reproduce so clearly that it cannot possibly be misinterpreted, it is usually better to use a simple outline drawing in pen and ink instead. You may be very sure that such a tracing properly made from the film will look better with your text and convey its meaning to the reader far more quickly and effectively. Sometimes, in order to get a good reproduction from a poor film, retouching is employed. This is a practice to be deplored in almost every case since the validity of the film is destroyed and the retouching which has been done will usually be evident in the finished cut.

The increasing demands of visual education in medicine have resulted not only in more and better published pictures, but in illustrative material to augment lectures and demonstrations. In a few minutes I shall try to demonstrate on the screen some salient points regarding the making and use of lantern slides. But first, a word about exhibits. This is the youngest branch of medical illustrating and it is growing so fast that we can hardly keep up with it. Already the scientific exhibits shown at the annual meetings of the national and state organizations as well as many sectional groups have just about become the major attraction. In the field of public health education also, exhibits designed for lay audiences are becoming more and more the responsibility of medical institutions. Here too, the old standards have gone by the board and today successful exhibits must be carefully designed to present the subject simply, clearly and graphically with a minimum of reading matter. If it is attractive

and easy to comprehend, it will invite inspection and study; if not, many will pass it by.

These, then, are some of the matters which concern us both. In trying to cover so much territory, I have run the risk of boring you and having made nothing very clear. On one point though, I can assure you: We medical illustrators are becoming more conscious of our part and our responsibility in medical teaching. You of the medical profession will agree, I am sure, that the best we can do is none too good. A picture once published cannot be recalled, but stands for all time as evidence of the part we played in the advancement of human knowledge.

---

FRANCESCO ANTOMMARCHI\*

1780-1838

ROBERT GLENK†

NEW ORLEANS

Francesco Antommarchi was born at Marsiglia, Corsica, in July, 1780. He was of Italian parentage, but as the island had at that time become a portion of French territory, he was rightfully a Frenchman, as he considered himself to be.

He studied medicine in Italy, at Siena, Pisa, and Florence. In Florence, he became a pupil of the noted Italian anatomist, Paolo Mascagni, at the hospital of Santa Maria Meora. Later, he was called to the chair of anatomy in the famous college of that city, and eventually became one of the distinguished anatomists in Europe.

It was while he was engaged in editing and publishing Mascagni's works, after the death of the author in 1815, that he was implored and finally persuaded to become the personal physician of the Emperor Napoleon, in exile at the island of St. Helena, by Laetitia, the mother of the Emperor, and by her half brother, Joseph Fesch, Cardinal of Lyons. This was in 1819, after

---

\*Read before the Orleans Parish Medical Society February 12, 1940.

†From the Department of Natural Sciences, Louisiana State Museum, New Orleans.



Fig. 1. Dr. Francesco Antommarchi. Lithograph in possession of Bibliotheca Parsoniana.

Napoleon was already four years in captivity and was showing signs of serious physical impairment. Consent being given by the English authorities for his going on this mission, he set sail for St. Helena in that same year, in company with Father Vignati.

Interesting sidelights on the daily routine of the little court at Longwood were given by Dr. Antommarchi in his *Memoirs* and, at the same time, he exposed some of the stern realities of Napoleon's prison life. The doctor diligently treated the sick man and tried every means in his power to impede the progress of the dread disease, carcinoma of the stomach, that was gradually undermining the Emperor's constitution.

On May 5, at 5:50 p. m., 1821, his patient died. The autopsy was made at 2 p. m. on the following day by Antommarchi in the presence of seven British surgeons.

In his declining years, Napoleon drew up his will and named Generals Bertrand and Montholon his executors. So complicated



Fig. 2. Deathbed scene of Napoleon Bonaparte, May 5, 1821, at 5:50 p. m. Print made from steel engraving of painting by Steuben, in Louisiana State Museum.

was his will, with four codicils, that confusion necessarily prevailed in its execution. Even the heroic General Montholon renounced his own legacy to obviate to some extent the difficulties in carrying out its provisions and to restore harmony and peace among the various heirs. He bequeathed to some score of persons the hair on his head, to be made into bracelets. Dr. Antommarchi was to receive a legacy of 100,000 francs, a sum expressive of Napoleon's gratitude for the devoted service rendered to him while living.

There was much jealousy among the surgeons at St. Helena and sharp controversy arose over the behavior of Antommarchi while there. The accusation was made that the doctor actually hastened his patient's death by his treatments. Be that as it may, the fact remains that those charged with the fulfillment of the Emperor's last wishes found technical reasons for

ignoring them and the bequest to Dr. Antommarchi was never paid.

Bonaparte's suite, including Dr. Antommarchi, reached London August 5, 1821, and was treated with conspicuous attention by the English. Six weeks later, the doctor departed for Italy.

In the winter of 1824-25, Antommarchi brought out his famous memorial "*Derniers Momens de Napoleon*", which was warmly received by the sympathizers with the late Bonaparte. In it, the author gives an account of the molding of the death mask of Napoleon and makes various statements that have challenged criticism and unbelief. "His book is a tissue of vulgar boasting and deliberate falsification," as one English critic puts it.

The year 1826 saw the completion of a very pretentious work on human anatomy in two volumes, one of text and one of plates, entitled: "*Planches Anatomiques du*

Corps Human," F. Antommarchi; Publiée, Ct. deLasteyrie, Paris, 1826. The book is an elephant folio edition on Whatman paper and the plates are life size lithographic prints in marvelous detail of execution. A copy of this valuable work is in possession of the Tulane University Medical Library, the gift of Dr. H. Cenas.

Apparently Antommarchi was an ardent Bonapartist and undeviating in his devotion to everything in glorification of Napoleon's memory. By his sharp criticism of the treatment of the Emperor by the English, life was made so unpleasant for him in Europe that he finally decided to leave for New Orleans, to take up his abode. He sailed on the ship "Salem", from Havre, and arrived on the morning of November 9, 1834, at the levee in New Orleans.

Here he was met by a large deputation of prominent citizens, headed by Judge C. A. deMaurian, and was escorted to the public hall, where Dr. F. Formento welcomed him in elegant and feeling language as one who had loved France and had been devo-

tion itself to the greatest military hero of his age. As New Orleans had been an American city for only a brief span of years, French enthusiasm was easily kindled by fond memories of the past. He was made to feel at home among the people at once.

On November 28, 1834, Antommarchi had inserted an announcement in the New Orleans "Bee" that he would open two offices for medical treatment; one at the house of Nicholas Girod, at St. Louis and Chartres Streets, where the poor would be attended without cost, from 11 to 12 daily, and another at Mr. Carlos Trudeau's house, 13 Royal Street, where paying patients would be treated from 12 to 1 o'clock. The balance of the day was to be devoted to making sick calls.

For a time, the doctor was a great favorite, and patients flocked to him in large numbers and his practice was quite remunerative.

In the course of a year or so, Antommarchi's popularity began to decline, and the reason for this change of sentiment may be laid to his own indiscretion in the matter of conduct. Advertisements for patients began to appear in the newspapers, contrary to professional etiquette. He was charged with practicing homeopathy, which at that time was looked upon by allopaths as on a par with charlatanism. He openly boasted of being a man without religion—an atheist—a typical anatomist, and he was quoted as having said that in his many operations on humans, his scalpel had never discovered a "soul" and, hence, men have no souls. When attending the mothers and wives of the city, whose lives were guided by religious principles of the church, the doctor scoffed at their simple faith and derided their deep sense of pious duty.

No mention is made of anything concerning his private life, except to say that he was a poor man so far as worldly goods were concerned, as his right and just claims to his legacy from Napoleon were entirely ignored by the wife of Napoleon and the executors of the will. He had only his profession to fall back on and this, at one time, was quite lucrative. Now his income



Fig. 3. House of Nicholas Girod, Chartres Street at St. Louis, New Orleans, where clinics for the poor were held by Dr. Antommarchi in 1834.

was diminished and his admirers became fewer as time went on. And so the doctor, welcomed so jubilantly a few years ago, began to feel unappreciated and ill at ease in New Orleans. He left the city and sailed for Cuba early in 1838, and thus his name disappeared from the pages of Louisiana history. He died April 3, 1838, in Santiago de Cuba, and was buried there.

Antommarchi brought with him to New Orleans the chest of surgical instruments which he used at the autopsy on Napoleon. This chest was in possession of Albert Lieutaud until recently.

Antommarchi's distinction rests primarily upon his relationship to Napoleon in the closing years of his life and upon his claim to having fashioned the death mask which preserved for all time the features of the Emperor.

A narrative of the origin and strange adventures of this intimate relic of Napoleon may not be out of place in association with the biographic sketch of the man who lays claim to the making of it.

In his Memoirs, Antommarchi refers but briefly to the details of making the death mask. He says: "I was at a loss for lack of plaster when Dr. Burton indicated a layer of gypsum rock in a remote part of the island. Sir Thomas Lowe at once gave orders, a long boat put to sea, and a few hours afterward fragments were brought back which I had calcined for me. I now had plaster, I molded the face, and I proceeded with the autopsy." The above passage is Antommarchi's own personal claim to the mask-making.

Amongst family private papers in possession of Mrs. Burton after the death of her husband, October 24, 1828, was correspondence between Antommarchi and Dr. Francis Burton, Surgeon 66th Regiment, in which Antommarchi acknowledged that Burton had made the plaster and taken the mold.

Resorting to original sources of information to gain the facts in connection with the making of the death mask of Napoleon about which there is so much controversy, G. L. deSt. M. Watson, of London, has been

able to reconstruct the episode of the mask and its aftermath which seems to be accurate and reliable.

The story condensed is as follows: On the day of Napoleon's death, there is talk both on the English and French side of making a cast of the face and head, and plaster is needed. On the following day, Antommarchi tries and fails in the attempt with such material as he had to work with. Dr. Francis Burton, however, succeeded in making a mold with some inferior plaster which he secured and on the next morning, on the arrival of better and fresher plaster, he takes his solitary cast and destroys the mold in so doing. From this cast, all the death masks of Napoleon originate. Burton left the cast to dry and on his return he finds that the front or "face part" has been seized and packed up by the Count and Countess Bertrand, and all efforts to recover his cast prove futile. On May 27, the Bertrands sail with their treasure for England. On June 13, 1821, Dr. Burton leaves with the "back part" of his cast, the occipital region, or just one third of the total skull. They all reach London in August and Dr. Burton tries to reclaim the "face part" legally. The suit came up in Bow Street Court, but Burton loses on some technicality and the Bertrands retain the cast and take it to France.

In the summer of 1822, when Dr. Antommarchi is their guest, they produce the cast and Dr. Antommarchi is allowed to make a secondary or piece mold of it. From this he takes a second cast and for nearly eight years nothing is done about it.

After Dr. Burton's death, the cast is brought to light and is palmed off as the original cast taken from the waste-mold, the fashioning of which he by this time publicly proclaims to have made, and from it is produced the 1833-34 edition of plaster and bronze masks. Meanwhile, the original cast, after doing duty as a reproduction medium, is put away and treasured by the Bertrands. From the daughter, it passed to Prince Victor Napoleon as a priceless treasure.



The right to the reproduction of the cast was placed in the hands of a French private syndicate and the firm of L. Richard et Quesnel, of Paris, was employed to make the casts of which fourteen are to be found in museums and private collections.

Phrenologists disputed the statement of Antommarchi that it was the authentic cast of Napoleon's face and head, as the skull lacked the "bumps" and distinguishing features requisite for such a "hero." Others were of the opinion that it was the face of the First Consul and not that of the aged Emperor. To vouch for its genuineness, a medallion struck off by the French mint under the sanction of Louis Philippe, the Citizen King of France in 1833, was attached to each bronze mask. This medallion shows a bas-relief portrait of Napoleon, crowned with laurels and with the lettering: "Napoleon, Empereur et Roi." Thus Antommarchi was able to overcome any opposition. To set it off properly, the head rests on a pillow of bronze and on this pillow appears the inscription, "A la ville de la Nouvelle Orleans par F. Antommarchi, 1834" on the mask which is in the Cabildo.

Antommarchi brought with him one of the bronzes when he came to New Orleans. A few days after his arrival, he wrote a letter to Dennis Prieur, Mayor of New Orleans, couched in the following terms:

New Orleans, November 12, 1834.

To the Mayor of New Orleans.

Mr. Mayor:

Profoundly impressed by the generous sentiments and keenly feeling the noble welcome with which the people of Louisiana have honored me, I have the honor of offering to this city the mask of the Emperor Napoleon, in bronze, molded by me at St. Helena after his death, and its bronze cushion.

I am happy to be the recipient of this homage intended to perpetuate the memory of the greatest man of all ages, among this free people, at the same time linking my great devotion to the grand and glorious souvenirs which this illustrious and majestic head recalls to the brave people of Louisiana, as well as to the universe.

While awaiting your orders concerning this, Mr. Mayor, I have the honor to be with high consideration.

F. Antommarchi.



Fig. 4. Death mask of Napoleon Bonaparte on bronze cushion, in Louisiana State Museum. Original bronze was presented to City of New Orleans by Dr. F. Antommarchi, November 23, 1834, with signature of Antommarchi and medallion of the French Mint.

Receiving a favorable reply, arrangements were immediately made for the formal presentation of the mask to the city.

The ceremonies were preceded by a parade of the brave men of the Louisiana Legion and the members of the French societies, with their banners and bands of music. The procession stopped in front of the Cabildo, the multitude went to the court room, and there the relic was presented with speechmaking, cheers, and great enthusiasm on Sunday, November 23, 1834. It remained in the Cabildo until the new City Hall was built by Gallier at Lafayette Square in 1850, when it was taken there and displayed. It disappeared during the war between the States and not until 1909, during Martin Behrman's administration, was it recovered. Now it is exhibited in a place of honor in the Sala Capitular in the Cabildo, the identical room in which it was so ostentatiously presented to the city in 1834.

To Louisianians, Dr. Antommarchi will ever remain an interesting character, particularly in connection with his rare and valuable gift to the city of New Orleans of the bronze replica of the death mask of Napoleon.

Much remains to be told of his eventful life, but documentary evidence is lacking in

this country so far as we have been able to find.

BIBLIOGRAPHY

Antommarchi, F.: *Les derniers momens de Napoleon*, 1824, Paris.

Bertrand, Count Henri Graticn: *Les Campagnes d'Egypte et de Syrie. Memoires pour servir a l'histoire de Napoleon dictes par lui-meme a Sainte Helene*, 1847.

Blanchard, Olivia: *Louisiana Historical Society Quarterly*, Vol. 8, No. 1.

Burton, Lady: *Life of Sir Richard Burton*, London, 1893.  
Castellanos, H. C.: *New Orleans As It Was*.

Frost, Meigs O.: *Times-Picayune*, November 23, 1934.

Hutton, Lawrence: *Napoleon*, Harper's Monthly, 1892.

*L'Abeille de la Nouvelle Orleans*, 1834-35.

*Le Courrier de la Louisiane*, 1835.

Louisiana State Museum Publication—*Death Mask of Napoleon*, 1936.

deMontholon, Count Charles Tristau: *Memoirs pour servir a l'histoire de France sous Napoleon, ecrits a Sainte Helene sous sa dictee*, 1822.

*Putnam's Magazine*—*Death Mask of Napoleon*, June, 1909.

Watson, G. L. deSt. M.: *Story of Napoleon's Death Mask*, London, 1914.

# NEW ORLEANS Medical and Surgical Journal

*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio

For one year: Lucien A. LeDoux, M. D.,  
Vice-chairman.

H. W. Kostmayer, M. D.

For two years: John A. Lanford, M. D.,  
Secretary.

For three years: Leon J. Menville, M. D., Chairman.

William H. Perkins, M. D.

## EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*

Willard R. Wirth, M. D.....*Editor*

Edwin L. Zander, M. D.....*Associate Editor*

## COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.

Daniel N. Silverman, M. D.

C. C. deGravelles, M. D.

M. D. Hargrove, M. D.

W. A. Rodgers, M. D.

Rhett McMahan, M. D.

C. A. Martin, M. D.

W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*  
1430 Tulane Avenue

**SUBSCRIPTION TERMS:** \$3.00 per year in advance, postage paid, for the United States; \$3.50 per year for all foreign countries belonging to the Postal Union.

*News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.*

**THE JOURNAL** does not hold itself responsible for statements made by any contributor.

*Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.*

## THE NEW OFFICERS

It has already been announced in the Journal that Dr. King Rand was selected as President-elect of the State Society for the coming year. The other officers who were elected, or re-elected, have not been commented upon because the Journal had to go to press.

In the selection of Dr. Rand, the Medical Society has made an excellent choice. Dr.

Rand has been active in advancing the purposes of organized medicine and as Speaker of the House of Delegates he has been impartial and just in his rulings. He is an active and successful practitioner of medicine, and is well known to the laity. Dr. Rand may have to face many difficulties when he becomes president. Changing times and the war make for unsettlement in everything. The Society will be fortunate in having such a man as president who will guide with a strong hand and with excellent judgment.

The other newly elected officers included as first vice-president, Dr. H. Ashton Thomas, who conducted so successfully the recent meeting of the Society in New Orleans; as second vice-president, the extremely popular Dr. J. J. Murphy was unanimously chosen. Dr. Dawson T. Martin, Donaldsonville, was elected third vice-president, a well merited honor. We are very glad that Dr. P. T. Talbot, in recognition of his excellent services to the Society, was again selected for a two year term as secretary-treasurer. The councilors for the first, second, and fourth districts were all re-elected. To succeed the late Dr. J. B. Vaughan as Councilor of the Fifth District, Dr. W. A. Rodgers was selected. Dr. Rodgers is a Bastrop man and is very much liked by the members in the fifth district. He should make an excellent councilor.

Practically all of the standing committees were re-elected with a few exceptions. To succeed Dr. Cole, who moves up to the president's chair, a former President of the State Society and the now Secretary of the Louisiana State Board of Medical Examiners, Dr. Roy B. Harrison was chosen Chairman of the Committee on Public Policy and Legislation. Because of his familiarity with legislation and because of his keen mind and well liked personality, Dr. Harrison is an excellent choice for this important position. On the Committee on Hospitals Dr. L. B. Crawford and Dr. L. O. Clark are new members.

To succeed Dr. Seemann as Delegate to the American Medical Association, Dr. L. J. Menville was the popular choice of the

House of Delegates. Probably no man in the state has a wider acquaintance with medical men throughout the country than Dr. Menville. His sane and intelligent judgment will make him a valuable addition to the House which represents the medical profession in national affairs. Dr. George Wright, of Monroe, was named to succeed Dr. Vaughan as Alternate to the American Medical Association for 1940-41.

Dr. Val H. Fuchs, of New Orleans, will succeed Dr. Rand as Chairman of the House of Delegates. Dr. Fuchs is not only an excellent parliamentarian but is a man of excellent presence who should prove to be a splendid presiding officer of the House. As Dr. Fuch was promoted from the vice-chairmanship, it was necessary to elect a new vice-chairman, Dr. A. W. Martin, of Bogalusa, being named for this position. Dr. Martin's familiarity with the House of Delegates and with parliamentary procedures will make him an excellent substitute presiding officer.

To all these new officers and to the officers who were re-elected, the Journal offers its congratulations and best wishes. It bespeaks the cooperation of the members of the State Society in backing up these, their elected officers, in the performance of their respective duties.

---

### CANCER CONTROL

Throughout the state there will be held in the last two weeks of June a series of graduate seminars having to do with the control of cancer. In addition to presenting to physicians the purely medical and scientific aspects of cancer, its diagnosis and its treatment, the man who will lead these seminars, will likewise appear before lay groups to publicize and inform the general public of the importance of the early diagnosis of this dreaded disease. Dr. Maurice V. Laing, of St. Louis, whose contributions to the study of cancer are well known, will conduct the several presentations. This should be a most interesting and stimulating short review of cancer.

The Cancer Committee of the State Medical Society is doing a good job in spreading

knowledge concerning the disease which is responsible for so many deaths in people who have past the age of 40. It is absolutely necessary for the laity to be informed of the early symptoms of cancer so that they might consult their doctor immediately. It is only by spreading information concerning cancer that the general public will become cancer-conscious in order that they will realize and appreciate certain deviations from the normal should be investigated by a physician. Even if the laity is well informed, criticism has also been made of the physician because he is not sufficiently on the alert to detect the early expressions of malignancy. Many lay individuals have complained that they will go to a doctor and ask for a physical examination. The doctor will scoff at the necessity of such an examination and will not bother to make it. This is, of course, the exceptional doctor. The intelligent, progressive physician realizes that a yearly physical examination is an essential to the maintenance of good health and that often abnormalities will be discovered about which the patient was unaware. This applies particularly to some of the early expressions of malignancy. Cancer discovered early is curable and all measures should be taken to detect it early and to apply remedial measures immediately. In view of the present paucity of knowledge concerning the etiology of cancer and its life history, it will be only by instruction of the laity and by the careful, complete examination of the patient that the disease will be reduced in its incidence in the coming years.

---

### HISTAMINE

Histamine is one of the important chemical compounds that has a pronounced pharmacologic and physiologic effect on the organism; yet, in spite of this, its value as a drug has been relatively restricted and, despite the great amount of experimental and clinical work that has been done with the preparation since it was first isolated from ergot in 1910 by Barger and Dale, its therapeutic use is still more or less experimental. The substance is widely

found throughout nature, being present in nearly all animal tissue. Probably the reason it is not commonly used is because it is so potent and has so many unfavorable bi-effects.

The drug, if it can be called such, has a markedly stimulating action on the autonomic nervous center. It profoundly affects secretions so that it is often used for diagnostic reasons, for example in order to secure gastric secretion. On the cardiovascular system it exerts a most powerful effect. It acts as a dilator of the capillaries so that following a relatively large injection there occurs marked flushing of the face, flushing of the entire body at times, and tachycardia, while the cerebrospinal and intra-ocular pressures are increased, visual disturbances may occur and the blood pressure falls. The preparation is probably the most active stimulator of uterine muscle contraction that now exists. It constricts bronchioles as well. Large doses produce symptoms which are analogous to those which occur in shock; even at times it may cause the development of edema.

It seems quite remarkable that a substance, which in doses of not more than 1 milligram has such a powerful effect on the human body, cannot be used more frequently than it is in the treatment of various disturbances to which the human organism is susceptible. It has been found to be effective in the treatment of rheumatic infections, in many instances most satisfactorily. In various types of arthritis, if it is used as a local injection it causes vasodilatation, particularly in the soft tissues and periarticular structures. This form of therapy is certainly one to bear in mind for use in the treatment of patients who have painful arthritides. It is found useful in brachial neuritis and other types of localized neuritis. It is said to be of considerable value in the management of peripheral vascular diseases to produce dilatation of the arterioles and capil-

laries. In this journal some years ago Thiberge<sup>1</sup> reported on its use in the treatment of asthma. At that time he wrote that more work should be done with histamine to determine whether or not it is a non-specific desensitizer in allergic cases. The drug has also been used in other allergic conditions. It is said to help sometimes in the management of chronic intractable urticaria and from the Mayo Clinic, Roth and Rynearson<sup>2</sup> have found the use of histamine and histaminase valuable in controlling insulin skin reactions which occasionally are annoying and disturbing. It is used also in cold allergy.

One of the most annoying and unsatisfactory conditions to treat is migraine. Also from the Mayo Clinic comes a report<sup>3</sup> of the treatment of headaches which resemble somewhat those of migraine which have come on in later life. Others have found this satisfactory in treating true migraine but utilized with caution. Sometimes histamine has been used successfully in the treatment of tobacco amblyopia.

Most of the conditions which have been enumerated are those to which any form of therapy is likely to be unsatisfactory. Perhaps when the physician has come to the end of his therapeutic armamentarium he may get results with histamine in these conditions, but not forgetting that in arthritis and peri-arthritis and other local inflammatory conditions of the locomotor system, histamine has definitely proved of value.

---

1. Thiberge, N. F.: Histamine in asthma, *New Orleans M. & S. J.*, 85: 39, 1933.

2. Roth, G. M., and Rynearson, E. H.: Histamine and histaminase in the treatment of allergic reactions to insulin, *Proc. Staff Meet. Mayo Clinic*, 14: 353, 1939.

3. Horton, B. T., and MacLean, A. R.: New syndrome of vascular headache; results of treatment with histamine, *Proc. Staff Meet. Mayo Clinic*, 14: 257, 1939.

**HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS****TOURO INFIRMARY**  
New Orleans

A regular meeting of the Medical Staff was held on Wednesday, May 8, at 8 p. m. The following program was presented: Clinico-pathologic Conference by Dr. John A. Lanford; "Cardiac Rupture" by Dr. B. R. Heninger; "Aplastic Anemia Following Neoparsphenamine" by Drs. C. L. Eshleman and Roy O. Yeatts; "New and Modern Anesthetics" courtesy of Winthrop Chemical Company, Inc.

**MERCY HOSPITAL—SONIAT MEMORIAL**  
New Orleans

The monthly meeting of the Medical Staff of Mercy Hospital was held on Wednesday, May 1, 1940, at 8:00 p. m. in the Lecture Room of the Hospital. Dr. R. A. Oriol, president of the staff, presided.

A symposium on carcinoma was held, during which the following papers were presented: "Surgical Treatment of Carcinoma of the Breast" by Dr. P. A. Phillips. "The Early Diagnosis and Surgical Treatment of Gastric Carcinoma" by Dr. L. J. Hanckes; and "Carcinoma of the Rectum" by Dr. Warren Hébert.

Following the symposium, an interesting case of laryngeal diphtheria, taken from the mortality records of the month, was presented by Dr. J. A. Vella.

P. A. Phillips, M. D., Sec.

**LONG HOSPITAL**  
Pineville

At the weekly staff meetings of the Huey P. Long Hospital, held under the supervision of Dr. O. W. McFarland, superintendent, and Dr. John C. Connell, pathologist, the following cases were presented during the month of April.

1. A case of a colored female who had been operated on for a large uterine tumor five months before her admission and had also received deep x-ray therapy. One month prior to admission she developed shortness of breath and weakness. A clinical diagnosis of myosarcoma with metastasis was made and this was confirmed by autopsy findings.

2. A case of a male negro admitted to the hospital with marked swelling of the abdomen. Examination revealed marked tenderness of the abdomen, ascites and enlarged liver. A large firm mass was palpable in the right lower quadrant. A clinical diagnosis was made of cirrhosis of the liver, intra-abdominal tumor and ascites. At autopsy the mass proved to be an appendiceal abscess with phlebitis leading to the liver with multiple liver and lung abscesses.

3. A case of a young colored male admitted to the hospital with symptoms and findings of an

acute appendicitis; an appendectomy was done. Five days postoperatively the patient developed pains in the ankles and right wrist with elevation of temperature. Prior to admission the patient had had acute tonsillitis. With the above findings of acute tonsillitis, fever, pain in joints and abdomen, a diagnosis of rheumatic fever was made. The diagnosis was proved by microscopic examination of the appendix.

4. A case of a young white female who was pregnant for the first time; however, the size of her uterus was not compatible with her history of amenorrhea. Due to the presence of vaginal bleeding and inconsistency in the size of the abdomen a diagnosis of hydatidiform mole was made. This mole was passed while in the hospital. Three weeks later she was readmitted with distention of the abdomen and a large mass about the size of a six months pregnancy was palpated. At operation two large multilocular cystic ovaries were noted and removed; a hysterectomy also being performed. A microscopic section was taken from a suspicious area of the fundus which presented some softening with invasion. This was finally reported as an early chorio-epithelioma of the uterus. Microscopic section of the ovaries revealed large corpus luteal cysts.

5. A case of a young negro admitted to the hospital with signs and symptoms of acute cardiac decompensation and presenting a picture of possible peptic ulcer due to the rigidity present in the upper abdomen, but due to the history of syphilis it was thought possible that this may have been a syphilitic process. The patient was treated for acute decompensation but the epigastric pain failed to subside. He expired suddenly on the ninth day after admission and autopsy examination revealed approximately 1000 c.c. of blood in the pericardial sac and there was also noted a dissecting aneurysm of the aorta. The dissection started from the distal part of the aorta at the level of the iliac vessels and extended upward to the pericardial sac. Multiple infarcts of both kidneys and lungs were also present. Small ulcers were noted in the pylorus.

6. A case of a white female admitted with the chief complaint of diarrhea for one year, swelling of the abdomen, feet and ankles, giving a past history of a massive gastric hemorrhage four years ago. A clinical diagnosis was made of cirrhosis of the liver, and possible carcinoma with metastasis. The patient was treated in the usual manner but expired ten days after admission. Two days prior to her death she began vomiting blood. Autopsy examination revealed massive blood throughout the gastrointestinal tract with extensive varices of the esophagus, perforated appendix with peritonitis, ulcerative gastritis, enlarged spleen and cirrhosis of the liver.

7. A case of a colored female admitted to the hospital with physical findings of tenderness in the right side with tumor mass. The uterus was fixed and pushed anteriorly towards the right and boggy was felt in the cul-de-sac. A diagnosis of pelvic inflammatory disease and cul-de-sac abscess was made. She expired ten hours after admission. Autopsy findings were those of a pelvic abscess which ruptured into the perineal cavity producing peritonitis.

All of the above cases were discussed both pathologically and clinically with analysis of their treatment.

A brief report of some of the interesting topics presented at the medical convention in Arkansas was given by Dr. John C. Connell.

Anthony Failla, M. D., Sec.

GRADUATE SCHOOL OF MEDICINE  
LOUISIANA STATE UNIVERSITY  
MEDICAL CENTER  
New Orleans

The scientific meeting of May was called to order by Dr. James T. Nix, Dean of the Graduate School of Medicine. Dr. Bjarne Pearson presented the following paper:

A CONSIDERATION OF RETOTHELIO-SARCOMA  
OF BONE

Occasionally one sees certain tumors of bone of non-osseous origin which resemble endothelial myelomas on the one hand and reticulum cell sarcoma on the other. Because the osseous manifestations of these tumors at times seem clinically and pathologically to occupy the foreground, even though the histology and course are at variance with Ewing's tumor, they are classed with this group. If a localized group of lymph nodes is involved primarily with secondary dissemination, including bone in the course of a reticulum cell sarcoma, there is no hesitancy to assign it to the proper group. As many of these patients are in an older age group than Ewing's tumor the possibility of confusion with metastasis from true hypernephromas from the adrenals or kidney and liposarcoma of bone becomes apparent. Ewing<sup>1</sup> accepts liposarcoma of bone as an entity and classifies it as such in the bone tumor registry. He apparently also accepts lymphosarcoma of bone. The cases under consideration would probably fall in this group.

*Endothelioma of bone:* It was already known that certain vascular bone tumors could exist as already pointed out by Bilroth, 1869,<sup>2</sup> and Kalaczek in 1878.<sup>2</sup> It is possible that many cases in the older literature represented forms of osteogenic sarcomas and even metastatic tumors. One of the most remarkable cases of this nature was that of Marckwald in 1895 who reported a multiple intravascular endothelioma in all the bones of the skeleton. Ewing has felt that this might be designated as a true endothelioma of vascular origin

It is the diffuse endothelioma of bone which has been referred to as Ewing's tumor. The clinical, anatomic and pathologic features of this tumor set it rather distinctly apart from other tumors of the bone. Although Ewing states that these tumors have an endothelial origin, he has found it difficult to trace the tumor to these cells. However, he has seen in early lesions small groups of cells arranged perivascularly and a variation in the same tumor in which there were angioendotheliomatous and peritheliomatous structure and also diffuse growths. Kolodney,<sup>4</sup> in reviewing the same sections of Ewing's material, commented on the perivascular arrangement which he thought could be present in any rapidly growing tumor. He mentions that the resemblance of this tumor to the lymphogenous diseases is very striking. Oberling<sup>5</sup> believes these tumors should be classified as reticulum cell sarcomas. Melnick,<sup>6</sup> in 1933, believed these tumors do not belong to the reticulum cell sarcomas as they do not exhibit phagocytic activity.

*Features of Ewing's tumor:* Accumulative evidence has fairly well shown that Ewing's tumor or the diffuse endothelioma of bone is a fairly definite group of tumors. In a series of 125 cases, Geschickter<sup>7</sup> found that 95 per cent of his cases occurred between the ages of 4½ and 25 years, with 50 per cent of the cases from the eleventh to the twentieth year. In most cases intermittent pain was present and as time went on the free interval became shorter. Tumor could be palpated initially in 19 per cent and during the course of the disease tumor was present in 90 per cent of the cases. The average duration before the treatment was 10 months. Pathologic fracture was rare in this series, occurring in only 5 per cent.

Fever is a rather constant feature ranging from 99 to 104°. Early it is found in 30 per cent of the cases, when dissemination and metastasis occur the fever becomes more constant.

The bones most frequently involved are the femur and tibia, next in frequency one sees the jaw, humerus, pelvis and fibula. Grossly a large extent of the shaft is involved. The epiphysis is rarely invaded, this being invaded in only three of Geschickter's 125 cases. From gross and microscopic studies it seems that the tumor arises subperiosteally. At least from gross inspection after amputation one sees most of the tumor subperiosteally, the medullary cavity contains only a small portion of the tumor but as this region is partially or totally occluded by new reactive bone it does not indicate that the main portion began as a subperiosteal tumor. Due to the growth of the tumor plus hemorrhage there is a gradual separation of the periosteum from the underlying cortex and hence parallel proliferation of new bone is formed which is distinguished early radiographically by the "onion peel" appearance. Erosion of

bone occurs by tumor infiltration and extends a considerable distance of the whole shaft. The soft part of the tumor is usually encapsulated by a layer of fibrous tissue and is separated by connective tissue strands extending from the outer capsule to the cortical bone.

The microscopic features of the disease are very uniform and are composed of small, round, coherent, closely packed cells. The nuclear diameter is from 7-9 microns. Very little pleomorphism is observed either in the original lesion or its metastasis.

In some cases the vascularity may be marked as to form areas resembling angiosarcoma, and tumor is usually present in the Haversian canals, whose blood vessels may be invaded by tumor tissue. It is this fact, together with the closely packed coherent "endothelial" like cells both in the original and metastasis, that has suggested this tumor is of endothelial origin.

In every case where the tumor progresses to a lethal outcome metastasis has been present. The most frequent sites are lungs, skull and lymph nodes. A definite latent period between the appearance of the original lesion and the onset of osseous metastasis was present in Geschickter's series ranging from two and a half months to one year. The most frequent metastatic bone lesions were located in the skull, spine, rib, scapula and clavicle.

*Reticulum cell sarcoma with bone involvement:* Ewing accepts lymphosarcoma of bone and refers to Craver and Copeland's<sup>8</sup> contribution of 164 cases in which the diagnosis of lymphosarcoma was established by biopsy or autopsy. Seventeen or 10.4 per cent were found to have bone involvement. Most of these patients died before the third year of the disease. The bones involved were the spine, pelvis, skull, femur, humerus, tibia, scapula, mandible, fibula and ribs. Pathologic fracture occurred five times. In the long bones the medullary cavity was involved extensively and osteolysis was the most frequent picture. The tumor infiltrates through the Haversian canals and extends beneath the periosteum. Usually there is no new bone formation. The histology in most of these was that of a small cell type of lymphosarcoma.

As early as 1914 Ewing had separated from this group of lymphoid tumor a large cell type which he states arises from the reticulum. In 1930 Roulet<sup>9, 10</sup> described in more detail these reticulum cell sarcomas and called them retiotheliosarcoma. He divides them into three groups:

1. Immature, in which the tumor is built up of a uniform syncytium with large pale polygonal cells.
2. Mature forms which are characterized by the tumor to form fine fibrils which arise within the plasma. In the early stages the fibrils are only apparent with silver staining, but later they assume a collagenous character.

3. Associated or combined forms in which the process is combined with pathologic proliferation such as leukemia or lymphogranulomatosis. This is in conformity with Oberling who describes Ewing's tumor as a retiotheliosarcoma localized to the bone marrow. What lends support to this contention are atypical bone tumors which conform in some respects to Ewing's tumor but have the morphologic criteria of reticulum cell sarcomas. Geschickter refers to these as atypical Ewing's sarcoma. These have a rapid clinical course and resemble acute osteomyelitis, and all with a fatal outcome. The two cases we are about to report are of this type. In one the diagnosis of reticulum cell sarcoma of bone was suggested when secondary metastasis occurred in the spine; later biopsy of the axillary nodes established the diagnosis of reticulum cell sarcoma. The second case, the original biopsy which was taken from an abdominal mass was in conformity with Ewing's sarcoma. Autopsy showed reticulum cell sarcoma.

#### CASE No. 1

Patient was a white male, 39 years of age, who was first seen at the Tumor Clinic on November 16, 1937, complaining of a mass in the right ileum since October, 1937, with pain in this region especially when walking. Because of this the patient resorted to a cane. On examination the mass in the region of the right ileum could be seen and felt posteriorly. It was a rather soft, indefinite mass, measuring 15 x 20 cm.

X-ray examination on November 3, 1937, revealed what was considered to be a periosteal sarcoma of the right ileum.

From November 18, 1937 to February 2, 1938, he received a total of 3990 R to right ileum. The tumor diminished rapidly in size and at the end of the treatment on February 2, no mass could be discerned and he was able to walk without the assistance of a cane.

Because he complained of some pain in the chest in the region of the sixth to eighth dorsal, x-ray was taken on January 18, 1938, which showed metastasis to the posterior arc of the left eighth rib and to the body and transverse process of the sixth dorsal vertebra. There was no metastasis to the lungs or mediastinum. The white count at this time was 6150 with a hemoglobin of 69 per cent and normal differential count. A tumor mass could be felt in the region of the eighth dorsal vertebra at this time, measuring 6 x 7 cm. From January 19, 1938 to January 28, 1938, a total of 1320 R was given over this area with complete regression of the tumor mass. It was felt at this time because of the metastasis to bone, the marked radiosensitivity of the lesion, and the age of the patient, an atypical Ewing's tumor or a reticulum cell sarcoma of bone must be considered. There was no evidence in this case of a primary lesion with metastasis to bone.



He was able to work and felt well until June 2, 1938, when he again noted pain the right hip and bilateral enlargement of the axillary nodes. These had been present for about 10 days and were 3-4 cm. in diameter, soft and freely movable. Biopsy done at this time of the axillary nodes showed a reticulum cell sarcoma.

In spite of additional x-ray treatment he went rapidly downhill and died on November 10, 1938.

#### CASE No. 2

The patient was a white male, 41 years of age, who was first seen when admitted to Charity Hospital on November 28, 1939, complaining of a swelling of the right leg since August, 1939. Two weeks afterwards he noted that lumps appeared near the umbilicus. A month before he came in, he began to have night sweats, chills and fever.

Examination revealed enlarged nodes in both inguinal regions and masses around the umbilicus. On the anterolateral aspect of the right leg there was a swelling extending three fourths of the length of the thigh. It was hot and tender and suggested acute osteomyelitis. Hemoglobin was 68 per cent and differential count was normal. Biopsy of the abdominal nodes gave a histologic picture compatible with endothelioma of bone. X-ray pictures were also compatible with Ewing's tumor of bone.

The patient died on January 12, 1940. Autopsy showed a tumor of the right femur with metastasis to the hilar lymph nodes, pancreas, both adrenals, abdominal wall and inguinal lymph nodes.

#### COMMENT

In a broad sense these two cases probably fall into the group of Ewing's tumor. The age of the patient does not necessarily exclude this tumor. In the first case the morphologic appearance of the excised node was definitely that of a reticulum cell sarcoma. In the second case, sections from the abdominal mass had the morphology of an endothelioma. However, the metastatic lesions as well as the primary lesion at autopsy revealed microscopically a rather marked degree of pleomorphism, with large cells containing bizarre, large, hyperchromatic nuclei. Some of the cells suggested the phagocytic activity of the reticulum cells because their cytoplasm contained a large number of polymorphonuclear cells.

Aside from the purely morphologic aspect of these tumors, it seems that those that have been described typically as belonging to the Ewing group have a longer, more protracted course. The average postoperative duration of life in the fatal cases is 16 months and the average duration before treatment is 10 months in Geschickter's series. Combined surgery and radiation gives about 10 per cent permanent cures.

If one is permitted to speak empirically from our own experience with reticulum cell sarcoma as occurring elsewhere in the body, we note that it is among the most radiosensitive of all tumors. So

quickly and completely does the original focus of the tumor disappear, very often to small amounts of radiation, that one begins to harbor a false sense of security as to its eventual curability. It has been our experience in following up these cases that even in the face of a most remarkable initial, apparently complete response, they live a year or less. This is true of reticulum cell sarcomas probably because of their tendency to generalize early. This has not been our experience alone, but is also reflected in the experience of Edling,<sup>11</sup> Gunsett,<sup>12</sup> Eigler and Kock.<sup>13</sup>

There are undoubtedly variations in the degree of malignancy in the group and studies similar to Roulet, Oberling, and Ahlstrom,<sup>14</sup> in attempting to separate these tumors on the basis of reticulum stains may be of value in the evaluation relative to the malignancy and future course and prognosis of this disease. Attempts of a similar nature are being made here at the present time. A plea is made for a more conscientious effort in evaluating these patients whether the manifestations are mainly osseous or non-osseous, and especially should they be followed up at more frequent intervals in spite of a remarkable initial response.

#### CONCLUSIONS

1. The endothelial origin of Ewing's tumor is difficult to demonstrate.
2. Atypical cases of Ewing's tumor have definite similarity to tumors of the reticulo-endothelial system and support this idea of their origin.
3. Because of the work of Roulet and Oberling a growing conviction of the reticulo-endothelial origin of these tumors has become more and more apparent. The name suggested has been that of retiotheliosarcoma.
4. In the atypical and older group one has to exclude metastatic tumors from the adrenal and kidney and also liposarcoma of bone, because of the similarity in morphologic appearance.
5. Two cases which could fall into the class of retiotheliosarcoma of bone have been described.
6. The initial therapeutic response should not give a false sense of security because the course of the disease is seldom longer than one year. A plea is made for a more critical evaluation of this group.

#### REFERENCES

1. Ewing, James: A review of the classification of bone tumors, *Surg. Gynec. & Obst.*, 68:971, 1939.
2. Ewing, James: *Neoplastic Diseases*, Philadelphia, W. B. Saunders Co., third edition, 1928.
3. Markwald, A.: Ein Fall von multiplem, intravasculärem Endotheliom in den gesammten Knochen des Skelets (Myelom, Angiosarcom.), *Arch. f. Path. Anat. u. Phys. u. f. klin. Med.*, 141:128, 1895.
4. Kolodney, A.: Bone sarcoma: primary malignant tumors of bone and giant cell tumor, *Surg. Gynec. & Obst.*, 44:126, 1927.
5. Oberling, C.: Les reticulosarcomes et les réticulo-endothéliosarcomes de la moelle osseuse (sarcome d'Ewing), *Bull. de l'Assoc. franc. p. l'étude du Cancer*, 17:259, 1928.
6. Melnick, P. J.: Histogenesis of Ewing's sarcoma of bone, *Am. J. Cancer*, 19:353, 1933.

7. Geschickter, C. F. and Copeland, M. M.: Tumors of bone, *Am. J. Cancer*, 1936.
8. Craver, L. F., and Copeland, M. M.: Lymphosarcoma in bone, *Arch. Surg.*, 28:809, 1934.
9. Roulet, F.: Das primäre Retothelsarkom der Lymphknoten, *Virchow's Arch.*, 277:15, 1930.
10. Roulet, F.: Weitere Beiträge zur Kenntniss des Retothelsarkoms der Lymphknoten und anderer Lymphnoiden Organe, *Virchow's Arch.*, 286:702, 1932.
11. Edling, L.: Contribution to the pathology and clinical picture of reticulum cell sarcoma, *Radiology*, 30:19, 1938.
12. Gunsett: Quoted by Edling.
13. Eigler and Koch: Quoted by Edling.
14. Ahlstrom, C. G.: Über Geschwulste der Retikuloendothelien der Lymphknoten, *Acta Path. Scand.*, 10:241, 1933.

HUTCHINSON MEMORIAL CLINIC  
OF THE  
SCHOOL OF MEDICINE  
THE TULANE UNIVERSITY OF LOUISIANA  
New Orleans

Scientific Session conducted by the Department of Social Service, Mrs. Julia Mae Magruder, presiding.

*Hyperthyroidism Complicated by a Social Problem* (Dr. Ambrose H. Storck): The case of Mrs. R., who was recently under active treatment in the Hutchinson Memorial Clinic for hyperthyroidism, particularly well illustrates the importance of the adjustment of social problems and the necessity of considering these factors in connection with medical care in some instances at least in cooperation with the Social Service Department.

Mrs. R. presented herself to the Surgical Clinic first on March 4, 1940. At the time I was asked to see her with the student who had first gone over the case. She was sitting on the edge of a chair with a child no older than about one and one-half years. She was obviously ill at ease; had the agitated facies of an individual with hyperthyroidism; and, in giving the history, it was first of all revealed that she was in the clinic in spite of the objections of her husband who was generally opposed to clinics and doctors and felt that she ought to be at home. She had left the several other children at home under the father's care, he being a W. P. A. worker and, not having been employed in several years, apparently devoted himself to fathering several children.

Going into the history in brief, Mrs. R. presented a complete picture of hyperthyroidism. Her basal metabolic rate was plus 62. She had a tremor. There was a history of weight loss. The problem of inadequate food supply arose in the course of the investigation that we carried on.

She was obviously in need of immediate hospitalization. When the matter of hospitalization was discussed with her, she felt that it was going to be entirely out of the question. She saw no solution and no way out for herself and felt that on account of her husband's attitude and their

very poor financial condition, she just could not leave the house and her children to the care of her husband.

The whole picture immediately presented itself as one that illustrated the need for help by a social worker. It occurred to me and was apparent to the student that before we could even make the first move toward starting operative treatment, help from the Social Service Department would have to be enlisted. That was done and Mrs. Magruder will tell you later what steps were taken to make it possible for this patient to go into Touro Infirmary.

It was possible, through the Social Service Department, to have Mrs. R. admitted to Touro Infirmary. After admission to the hospital, she quieted down, responded well to treatment, and a bilateral subtotal thyroidectomy was performed. She had an uneventful recovery and returned to her home. Those are the essential points from the surgical point of view.

*Social Service—A Component in Medical Care* (Julia Mae Magruder): Social service in the medical institution was originated by physicians who were conscious that the needs of a large number of patients were not being met in clinics and hospitals because of the necessity of treating large numbers of people apart from their natural setting. The disease was treated but in many instances little or nothing was known of the person who had the disease, his environment, family relationships, hopes and fears. Often facts important in diagnosis were unknown. Gradually through the years has developed this service which fills the gap and is an extension of medical care. To be effective, it must be an integral part of medical care, not an unrelated service. It is an adaptation of social case work technics based on knowledge and skill acquired through training and experience. The social worker must have an understanding of human behavior and social environment, skill in interviewing and the ability to mobilize the social resources of the community in order to increase the effectiveness of diagnosis and treatment. The purpose of social service is to provide an understanding of the individual and his problems in the way best suited to the needs of that individual.

Social work encompasses many activities but is thought of most frequently as relief giving. It is thought by many that, given the means of subsistence, the other social problems will solve themselves. One of the reasons for this is that the individual so often expresses his problem in terms of money. It is tangible, easily expressed and in clinics where so many have limited means, it may be said to be applicable to the majority of patients. The patient who cannot accept the idea of taking insulin because of fear, a feeling of revulsion or lack of understanding finds it easier to say he cannot afford it. To deal adequately with the situa-

tion, the individual and his problems must be understood and the problem approached in terms of the patient as a person. Financial assistance is only a small part of the medical social problem, although it looms large sometimes because of the lack of resources.

The primary function of the Social Service Department of the Hutchinson Memorial Clinic is case work adapted to the problems of ill health. In the main these problems are related to inadequate physical or economic protection, faulty personal habits, dissatisfactions within the personal life and relationships and lack of understanding of medical needs. Each case of social maladjustment presents one or more of these factors in varying combinations and each requires highly individual treatment. Each case must be studied and the problems met through conscious and coordinated planning. It is a painstaking process requiring continuity and sometimes covers a period of months or years. Much has gone into the making of the human being who presents himself for medical care and no two are exactly alike. The simple telling of the patient what to do often does not mean that it will be done. Environmental changes must be made, relationships adjusted and attitudes modified. The planning for the patient must be related to the family, work and educational situation to achieve satisfactory results. When several members of the family are under medical care the plan must be adjusted so that the needs of each are met. The individual cannot be isolated from his family and one member of the family cannot be given special consideration at the expense of the others without destructive results.

Cooperation with social agencies is necessary for coordinated planning and to avoid duplication. They need us and we need them. They provide services and material assistance that the medical agency could not begin to supply and they need to have an intelligent understanding of the medical problems and needs of their clients in order to plan constructively with the families with whom they are working. Often through their intimate knowledge of the family they can provide information that will give us insight into the medical social problem that we can get in no other way.

It is impossible for the busy doctor, in addition to his already heavy responsibilities, to carry out the detail of social services. And yet the neglect of the social factors in the medical problem results too often in incomplete or futile treatment. In delegating the detail of social study and adjustment to the social worker, the doctor does not and should not give up any part of his real responsibility for the patient. The purpose of social service is not to relieve the doctor of responsibility but to make it possible for him to meet that responsibility more effectively.

The Hutchinson Memorial Clinic as a teaching clinic, has as its objective the teaching of medical

practice, not simply theoretic medicine. In this setting, social service is a part of the teaching process. In teaching the social component of medicine, the purpose is not to make a social worker of the medical student but to give him an understanding of the relation between the social and medical problems. He must understand the cause and effect relationship between medical and social problems. He will face these problems in medical practice and, in many instances, will have to assume some responsibility in solving them. Just as the practice of medicine cannot be taught without the examination and treatment of actual patients, social problems in medicine have no reality for the student unless he sees social case work clearly and fully demonstrated. Theoretic discussion of social problems and their solution is unconvincing unless it is supported by demonstration in the care of the patient. Disregard of the social factors related to illness implies to the student that they are not a part of the medical problems and he therefore considers them as no part of his responsibility. Unless the social component in medicine is instilled into the student throughout his medical course, an awareness of it usually is not developed short of years of practice and in some it never becomes a part of the thinking. Social case work involves a flexible and intangible process that is difficult for the student to grasp through any means except demonstration. And grasp it he must if he is to adapt the method in his practice.

The case presented by Dr. Storck illustrates the variety of social problems that may complicate the medical care of the patient. Mrs. R. had five children. The baby, who was two months old, was breast fed and two of her other children were under the age of three years. The family was on relief because the husband was incapacitated for work due to a hernia. Mrs. R. exhibited a great deal of fear of her husband who "did not believe in doctors and did not think she was sick anyway." The baby had to be weaned within a week, arrangements had to be made for the housekeeping and the care of the children and the cooperation of the husband had to be obtained. It meant immediate admission of the baby to the clinic for feeding instructions; visiting nursing service to teach and supervise the preparation of the formula and to instruct the patient in the care of her breasts; obtaining housekeeping service through the W.P.A.; and interpretation to the husband as well as the patient. The real problem here was the husband; the other things were relatively simple. The patient appeared to fear her husband more than she did the operation. She was afraid of what he would say when she reached home because she had had to remain over for the afternoon clinic to have the baby seen and had not been at home to prepare the mid-day meal. Unquestionably Mr. R. presents a problem that can be

handled only by a psychiatrist, though it may be too late for psychotherapy to be effective since he is considerably older than his wife. In any case, our patient needed immediate care; we could not wait for the husband to receive psychiatric treatment. The husband had to be met at his own level then, in a way that he could understand and accept. We knew very little about him but he was approached in the light of a knowledge of fundamental behavior patterns. In spite of what the patient had expected, he responded readily, gave his consent for the operation and came in the following day to see the doctor as he had been requested. The patient was admitted to the hospital at the scheduled time. The patient was relatively undisturbed as hospital admission approached, in contrast to her feverish excitement and anxiety of the previous week. How much of the change in the patient was due to physical improvement, Dr. Storck would be able to tell you. Here we have a patient in whom there is an accurate diagnosis and a clear-cut treatment plan. And yet without recognition and adjustment of the complicating social factors, it might have been just another record with that classic ending, "Patient failed to return."

*Medical Social Case Work Practice—Case Illustrations* (Helen Koft): Medical social workers accept the thesis that impairment of physical function is traced to organic disease, physical deprivation and emotional dissatisfactions. Treatment of the patient or adjustments must be made in all three areas. The physician prevails in matters of health, and social worker in matters of social causes and consequences. When the three causes are interrelated frequently the complexity of treatment increases and necessitates the cooperation between physician and medical social worker.

To demonstrate the cooperation and to emphasize the services a medical social worker may give, the following situations selected from our case records are presented:

Mrs. M., a 22 year old, white woman, and her two year old child were referred by the doctor to the Social Service Department to plan for nursery care for the child. Mrs. M. was anemic and underweight. A special diet and afternoon rest were recommended for her. She thought the child made it impossible for her to rest and this was undoubtedly true but she was also the victim of poor household management and domestic confusion.

The medical social worker made it possible for her to secure consultation service regarding child care and discipline and budgeting from the local family agency. She was given the opportunity of discussing her problems with a skilled person capable of helping her through a difficult period in her early marriage.

Had the baby been temporarily removed and nothing done for the mother, the contributing problem, namely, the mother's inability to manage her

child and her home, would have remained unsolved and the disability might have continued.

The effect of environment on disease has been universally accepted. Dr. G. Canby Robinson, of Johns Hopkins, in a recent study of 174 unselected patients receiving medical care, found that 124 or 71 per cent could not have been adequately treated without considering their social conditions. He found that without an appreciation of the underlying social causes of psychogenic symptoms, treatment too often began and ended with ineffectual reassurance or with sedative drugs.

In our clinic this point is illustrated by the case of a nine year old boy who was referred to social service in August, 1939. He had been treated at the clinic intermittently for three years for gastric disorders, flat feet, colds and nervousness. The medical social worker visited the home and studied the situation. It revealed that the boy was the only child of an alcoholic father and an overly-protective mother. The parents were incompatible and admitted frequent quarreling at meal time. Eventually it appeared that the loss of the child's appetite, his erratic food habits and general lethargy were due to the family problems. The mother's temper tantrums in the presence of the child and her criticisms of the father's behavior seemed to be responsible for the child's emotional conflicts which had so influenced his physical health. Fortunately the parents were able to understand this; the father left home temporarily while he received treatment at the Veterans' Hospital and during his absence the mother learned to modify her relationship with him for the good of the child.

Physicians are well aware of the fear which exists for the patient who has had or thinks he has had unsatisfactory medical treatment in the past.

Resistance to further medical care can often be met with careful interpretation and sympathetic appreciation of the patient's difficulty. For example, a 28 year old white woman reported to the Medical Clinic September, 1939, with complaints of soreness in both tibia and right hand. Following the diagnosis, antiluetic treatment was recommended. The patient was told a spinal puncture would be necessary. She did not return. Her failure to return to the clinic was reported to the Department of Preventive Medicine; a medical student was assigned to make a home visit with the medical social worker. They made a tentative plan of approach to the family. The family living on a marginal income appeared uninterested in renewing their contacts with the clinic and gave as reasons:

1. Two negative Wassermanns which they supposed made further treatment unnecessary.
2. The fear that a spinal puncture would affect her mental condition.
3. Inability to pay for the treatment.

4. Husband's objections to her visits to clinic.

5. Her lack of faith in treatment because she believed her original infection had been derived through blood transfusions administered without proper precaution at another hospital.

The student and the medical social worker met these objections in a discussion with the woman and later with the woman and her husband. The student explained that her most recent Wassermann was positive and that her ill health was caused by the persistence of the old infection. He also described the spinal puncture and she was given confidence by being told a practicing physician, and not a student, would make the test.

The medical social worker discussed their financial situation and the social consequences of the disease for her own family and for the community. The husband was seen and he agreed to the advisability of following the recommendations after he understood the situation.

Finally the patient's resistance was reduced to her strong feeling about the source of her infection. Together the student and the medical social worker helped her to accept her previous experience as something in the past which could not be changed and emphasized the probability of a good prognosis provided she resumed treatment.

The patient returned to the clinic, resuming her antiluetic treatment, and three months later she was willing to submit to a spinal puncture. Her confidence had been restored by the tolerant and sympathetic understanding of the doctor who was aware of her fears and resistance.

These cases by no means represent the full extent of the social component in medicine but illustrate to a degree at least, the variety of problems which are met in a teaching clinic such as this.

*The Role of the Psychiatric Social Worker* (Nirna E. Mead): Much of the material which has been presented by Mrs. Magruder is pertinent as well to the social problems encountered in psychiatric work and to the functioning of the psychiatric social worker. However, in work with patients who are mentally ill, intellectually handicapped, or emotionally inadequate, unstable or maladjusted, the social worker who supplements and complements the work of the physician finds herself confronted with some unique problems and therefore does function in certain areas in a special way.

In our work we find the too prevalent attitudes regarding mental illness a serious handicap. Shame, ignorance, superstition, and failure to recognize and understand psychosomatic relationships frequently prevent an individual from securing necessary and proper treatment. Interpretation with desensitization is therefore often the first essential.

The social worker may step into this gap. Her knowledge of mental illness and emotional distur-

bances, the signs, symptoms, and medico-social implications, may enable her to serve as an interpreter to patients, relatives, interested persons or agencies, of not only the illness and need for treatment but also of the services that are available and of the prerequisites for securing them.

After the need for treatment has been determined and plans for the securing of such treatment have been made, complications sometimes arise. An individual aware of his need for psychiatric treatment may seek such treatment without the knowledge of his family. If a treatment regimen is to be attempted, the understanding cooperation of the family is desirable if not indispensable. The social worker may be able to use her knowledge and skill to effect a favorable treatment situation. Conversely, a member of a family, with an awareness of the illness of another member who does not have insight into his own condition, yet may be seriously in need of treatment, may bring this problem to the social worker. Through careful planning and guidance, a treatment program may be instituted and trauma for all concerned kept at a minimum.

Giving assistance in regard to commitment may become a part of the social worker's function relative to treatment. Due to the legal concept of insanity and the fact that hospitalization of a mentally ill person is primarily a legal rather than medical procedure, this step is frequently difficult to take from both an emotional and technical point of view. Interpretation of the patient's need of hospitalization and its advisability for the patient as well as for the family and possibly the community, together with an explanation of hospital facilities and services, frequently helps a patient or his family to accept and seek hospitalization. Commitment procedure is then discussed and if need be, assistance is given in carrying it out. It is sometimes possible for us to help in effecting the actual hospitalization of a patient in a way less terrifying to an already disturbed patient and less distressing to the family than may be the case if it is handled routinely. If a patient's mind, in place of his lungs, heart, or appendix be diseased, we have the quaint custom of having him picked up by the sheriff or police and placed in jail or other hardly more desirable situation to await ultimate disposition.

In psychiatric work, a patient must be studied and treated as a person, a member of a family or primary group, and the community or secondary group. Diagnosis may be dependent upon the securing of a life history with subjective and objective interpretations. A treatment program must be formulated in terms of the assets and liabilities present in the life setting. The physician, if the patient is not too ill, will secure from him his story with his own subjective interpretation of it and of his illness.

This furnishes a starting point but much may remain to be discovered. The study of our patients seems to us to be the securing and fitting together of multitudinous pieces of an intricate picture puzzle. Gradually, little by little from this source, from that one, information is gleaned, factual data, attitudes, relationships, experiences, actions, and reactions, in the hope that eventually all necessary fragments will be had and the picture in its entirety be achieved.

What is the nature of this person? What were his racial and familial inheritances? Does he come of phlegmatic, sturdy stock or is he of highly emotional unstable stock? What was his intellectual endowment?

What has been the patient's nurture? What was the cultural pattern in which this personality developed; what the family constellation? Are his oddities in thinking and acting a product of a sick mind or a warped personality or rather the expressions of racial and familial prototype? The bank president who complains that a spell has been cast upon him presents a picture which varies from that of the backwoods negro who relates tales of spell-casting. What have been the stresses and strains, what the satisfactions and joys? Wherein lies weakness, wherein strength? What is the history of the patient's physical, mental and emotional development? What has been his behavior pattern? Are there threads which can be traced throughout to give diagnostic clues? Wherein is modification of situational factors, of attitudes possible? To what extent can accommodation and adjustment in the home and in the community be anticipated?

In an attempt to secure answers to these questions the social worker may come to the aid of the psychiatrist. Interviews with the patient and members of his family may bring answers to some of them. An objective evaluation of the home and community will bring others. Reports from institutions, schools, former employers and other social agencies may be secured. Such reports frequently enrich the study of a case and at times will even provide leads which may prevent or dissipate an impasse, diagnostic or therapeutic.

While a patient is under treatment in a clinic, interpretative work with the family and perhaps in the community may be a necessary part of the total treatment program with which the social worker may assist. Withdrawal of a patient from treatment against advice may be prevented through her efforts as well as returning a patient to convalesce in a situation in which the possibilities of continued improvement with satisfactory social adjustment and perhaps ultimate recovery are practically precluded.

Follow-up services are another area in which the social worker may function. Along with assisting with treatment and environmental manipulation and accommodation, she can watch for signs

and symptoms of relapse or recurrence of an illness. The patient can then be returned to clinic or hospital care before all the gains theretofore made have been lost.

Since knowledge and consideration of the social factors involved is essential to diagnostic and treatment procedure, in our Clinic, we follow certain practices which are peculiar to our particular set-up.

The physician-social worker relationship is closely knit. All patients who are admitted to the psychiatric clinic for work-up and treatment automatically become part of the social worker's case load without written referrals. Social service is recorded in the chronologic record under a special identifying stamp. This plan has been adopted in order that the services to the patients will be more closely correlated and integrated than sometimes was found to be the case when social service recording was done as a separate part of the history. We attempt to have these notes as brief as possible, relevant, significant, and helpful as regards the treatment of the patient as a whole.

A second practice which at this time is peculiar to our clinic is that of registering with the Social Service Exchange all patients who are admitted to the clinic. The Social Service Exchange functions as a central clearing house for the welfare agencies in the community. It makes possible the coordination of welfare work and the avoidance of duplication and possible conflicts. This being a free clinic, as would be expected, many of the patients have been known to other agencies and may be currently active with others. This registration practice has been found valuable from three points of view: Upon registration of a patient the exchange notifies us of all agencies to which the patient, his immediate family and collaterals, that is, parents, siblings, children, and in-laws have been known. We are thus enabled many times to secure from such agencies, data valuable in working out diagnosis and treatment. On the other hand when a patient has been registered by us, it becomes possible for an agency that may be active with the family in some other area or that may become active at some future time, to be cognizant of factors that may be of considerable importance, in their work with the case.

Thirdly, the registration slip which is attached to the unit history and becomes a part of it furnishes a teaching tool, an educational medium. In our clinic the social worker's services are available to the student in the work-up of his case which, as has been noted, includes the securing of a social history as complete as possible and a visit to the patient's home. The registrations and their possible or evident implications are discussed with the student and, if indicated, reports from agencies of records are secured for his use. Welfare organization is thus brought to the attention of the student. Interpretation of available com-

munity resources and the use that a clinic or physician may make of them, as well as interpretation of the lack of resources and weaknesses or defects in the welfare setup is, we feel of importance educationally to the medical student. The clinic's experience in regard to these procedures has seemed to justify them as constructive and

fruitful from the point of view of patient, clinic, and community.

I have sought to give you a general idea of the role of a psychiatric social worker in a clinic and of how we are attempting to function as such in this clinic.

---

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

- June 3. Orleans Parish Medical Society Board of Directors, 8 p. m.  
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
- June 4. Eye, Ear, Nose and Throat Staff, 8 p. m.
- June 5. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Hutchinson Memorial Clinic Staff, 8 p. m.  
Mercy Hospital Staff, 8 p. m.
- June 6. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- June 10. Orleans Parish Medical Society, 8 p. m.
- June 11. Eye, Ear, Nose and Throat Society, 8 p. m.
- June 12. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Touro Infirmary Staff, 8 p. m.
- June 17. Hotel Dieu Staff, 8 p. m.
- June 18. Charity Hospital Medical Staff, 8 p. m.
- June 19. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
Charity Hospital Surgical Staff, 8 p. m.  
The Orleans Tuberculosis Hospital Staff, 8 p. m.
- June 20. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- June 21. I. C. R. R. Hospital Staff, 12 noon.  
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- June 25. Baptist Hospital Staff, 8 p. m.
- June 26. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.  
French Hospital Staff, 8 p. m.
- June 27. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- June 28. L. S. U. Faculty Club, 8 p. m.

During the month of May, the Society held one regular scientific meeting and a special meeting with the New Orleans Tuberculosis Committee.

At the regular meeting held May 13, the following program was presented:

1. Biographical Sketch: Dr. Thomas Hunt.  
By invitation.....Mr. Rudolph Landry.
2. Preliminary Report: Prostatic Hyperplasia and its Response to Diethylstilbestrol and Diethylstilbestrol-Dipropionate.  
By.....Drs. P. Jorda Kahle and Emile Maltry, Jr.
3. Further Studies in the Cause of Blindness in Louisiana.  
By.....Dr. H. F. Brewster.  
Ten-year Survey of Luetic Lesions of the Eye, Ear, Nose and Throat.  
By.....Dr. W. E Kittredge.  
Kodachrome Clinic of External Eye Diseases.  
By.....Drs. Smith, Clark and Beil.  
Glaucoma—The Responsibility of the General Physician.  
By.....Dr. M. Carl Wilensky.  
Acute Eustachian Tube Obstruction.  
By.....Dr. E. Garland Walls.

The following program was presented at the joint meeting of the Orleans Parish Medical Society with the New Orleans Tuberculosis Committee:

- The Pathogenesis and Pathology of Pulmonary Tuberculosis.  
By.....Dr. Edward L. Burns.  
The Early Diagnosis of Tuberculosis from the Standpoint of the Pediatrician.  
By.....Dr. Emile Naef.  
The Early Diagnosis of Pulmonary Tuberculosis.  
By.....Dr. M. W. Miller.

### AMENDMENTS TO CHARTER AND BY-LAWS

At the general meeting of the Society held Monday, May 13, the following amendments to the By-Laws were adopted:

1. That the retiring president be a member of the Board of Directors for the succeeding year without having to be elected.
2. That a President-elect be elected to take office one year later.
3. Delegates be elected at general election of officers by secret ballot. In this connection

the polls will remain open all day. Increase the pay of election tellers from \$5.00 to \$10.00.

4. Allow for absentee voting.

The Louisiana Chapter of the National Gastroenterological Association and the Orleans Parish Medical Society attended the meeting of the staff of the Marine Hospital, Thursday, May 9, at 8 p. m. The program was as follows:

1. Surgical Aspects of Gastric and Duodenal Ulcer, by Dr. J. D. Lane. Discussion by Drs. Isidore Cohn and James T. Nix.

2. Surgical Aspects of Gallbladder Disease: Review of 300 Cases, by Drs. Urban Maes and S. Romano. Discussion by Drs. Alton Ochsner and Mims Gage.

3. Experimental Work on Dogs Which May Throw Light on Clinical Amebiasis, by Dr. Ernest C. Faust. Discussion by Dr. J. G. Pasternack.

The following doctors were elected to membership in the Society: Active—Drs. John J. Hallaron, John Morgan Lyons, Richard M. Street. Intern—Drs. Vance J. Elliott and Paul L. Getzoff.

The Secretary reports with regret the loss of Dr. John A. Devron, one of the Society's active members.

#### NEWS ITEMS

Dr. H. Aubrey White, Alexandria, was elected president of the Louisiana State Pediatric Society at the twelfth annual meeting held at the Roosevelt Hotel, Monday, April 22. Other officers elected were: Dr. Julian Graubarth, New Orleans, vice-president, and Dr. W. C. Rivenbark, New Orleans, secretary-treasurer.

Dr. P. J. Carter, New Orleans, was elected president, Dr. D. C. McBride, Alexandria, vice-president, and Dr. Earl C. Smith, New Orleans, secretary-treasurer of the Louisiana Gynecological and Obstetrical Society at the annual meeting held Saturday, April 20 at the Roosevelt Hotel.

Announcement has been made of the formation of an undergraduate honor society in the School of Medicine of Louisiana State University, under the sponsorship of a faculty committee consisting of Dr. B. I. Burns, Dean; Dr. Charles Midlo, and Dr. J. D. Rives. The fourth year membership is limited to the upper tenth of the senior class, and third year membership to the three highest ranking students in the Junior Class. The organization is known as The Circle.

Dr. Gilbert Anderson presented a paper on "Fungous Infections of the Brain" before the Harvey Cushing Society in Kansas City on May 1.

Dr. Urban Maes attended the meetings of the Society of Clinical Surgeons, and the American Surgical Association in St. Louis on April 29 and May 3.

Dr. H. J. Schattenberg has been elected to membership in the American Society for Experimental Pathology.

Dr. John Connell read a paper entitled "Advantages of Serum Transfusion Over Other Intravenous Medicaments" before the Arkansas State Medical Society in Fort Smith on April 17.

Dr. John H. Musser presented a paper before the Missouri Medical Society in Joplin, on May 1, entitled, "Treatment of Some Acute Contagious Diseases." Following this meeting Dr. Musser attended the meetings of the American Society of Clinical Investigation and the Association of American Physicians at Atlantic City, May 6-8.

Dr. George W. McCoy, Director of the Department of Preventive Medicine and Public Health in the Louisiana State University School of Medicine, attended the meetings of the American Epidemiological Society in Boston, April 26; the National Foundation for Infantile Paralysis, Inc., in New York, during the latter part of April; the Association for American Physicians in Atlantic City, May 7-8; the National Board of Medical Examiners in Washington, D. C., May 10; and the meeting of the U. S. P. Revision Committee in Washington, May 12-14.

Dr. Alton Ochsner gave a talk on acute cholecystitis before the Springfield, Missouri Medical Society on Saturday, April 27; he also presented a paper on thrombophlebitis before the Mississippi Chapter of the American College of Surgeons on May 13.

Drs. Mims Gage and Alton Ochsner attended the meeting of the Society for Clinical Surgery, which was held in St. Louis on April 29 and 30, and also the meeting of the American Surgical Association, which was held in St. Louis, May 1, 2, and 3. They presented a paper entitled, "The Prevention of Ischemic Gangrene Following Surgical Operations on the Major Peripheral Arteries by Chemical Section of the Cervicodorsal and Lumbar Sympathetics." Dr. Ochsner also attended some of the sessions of the Eighth American Scientific Congress, held in Washington, D. C., May 11-18.

Dr. Daniel J. Murphy addressed the Loyola student branch of the American Pharmaceutical Association at their annual banquet held May 2.

Dr. Hiram W. Kostmayer recently spoke before a meeting of the local district of the Louisiana



Federation of the Women's Clubs. He discussed the proposed state law regarding blood tests for syphilis in maternity cases.

Dr. George Feldner gave a talk on modern medicine at a recent meeting of the Grand Consistory of Louisiana held at the Scottish Rite Cathedral.

Dr. Charles J. Bloom recently addressed the South Mississippi Medical Society at Laurel. His subject was "Spastic Colitis in Infancy and Childhood."

Dr. Ambrose H. Storek recently addressed the Lauderdale County Medical Society at its meeting in Meridian, Miss. He discussed the "Diseases of the Gallbladder and Biliary Tract."

A paper on "The Analysis of Comparative Skin Reaction by Means of the Chi-square Statistic" was presented at the Texas Allergy Association, May 13, by Drs. Pabst, Boatner and Efron.

Drs. Maxwell E. Lapham, Charles C. Bass, Roy H. Turner, William A. Sodeman, and Grace A. Goldsmith recently attended out-of-state meetings of medical societies.

Dr. Frederick F. Boyce has been elected a Senior Fellow of the Southeastern Surgical Association.

HOSPITAL NEWS

Work on the eighty bed annex under construction at the Southern Baptist Hospital is progress-

ing. The first two floors, which will serve as interne quarters, will be ready for occupancy July 1.

TREASURER'S REPORT

Bank balance, March 28, 1940.....	\$5,340.51
April credits.....	\$1,133.32
<hr/>	
Total credits .....	\$6,473.83
April expenditures .....	\$1,058.07
<hr/>	
Bank balance, April 30, 1940.....	\$5,415.76

LIBRARIAN'S REPORT

During the first quarter of 1940, 220 volumes were added to the Library. Of these 142 were received by binding, 41 by gift, 2 by purchase and 35 from the New Orleans Medical and Surgical Journal. New titles of recent date have been listed in the Bulletin and in the Journal.

The Library has loaned to doctors during the same time, 3,392 books and journals or more than 6 to each member of the Society. An additional 3,162 items have been loaned to students for overnight use, bringing the total number of books and journals circulated to 6,554, the largest quarterly circulation in the history of the Library.

Members of the staff have collected material on 39 subjects during the quarter. This reference work, it should be noted, is in addition to the great use of the Library facilities within the reading rooms for calls which can be filled immediately by consultation of the indices or the card catalog.

Edwin L. Zander, M. D.,  
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS  
CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in June	Jackson
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

REPORT OF THE HOUSE OF DELEGATES  
TO THE GENERAL ASSEMBLY OF THE  
LOUISIANA STATE MEDICAL SOCIETY  
SIXTY-FIRST ANNUAL SESSION

New Orleans, April 22-24, 1940

There were two meetings of the House of Delegates held during the 1940 session of the State Society, one on April 22 and one on April 24.

Reports containing recommendations were acted upon as follows:

Report of President

1. Consideration of question of full time secretary: Motion was made and carried that the Chairman of the House appoint a committee of five to consider this question and report to the Executive Committee for final action.

2. Consideration of representation and control of health agencies by the Louisiana State Medical Society and fostering legislation toward that goal: Motion was made and carried that this recommen-

dation be adopted and referred to the Legislative Committee.

3. Consideration of election of president-elect by popular vote: Motion was made and carried that this question be referred to the Executive Committee for action.

4. Instruct Secretary to write to the State Board of Health and the Committee on Medical Education, thanking them for conducting refresher courses; and to the Journal Committee and Editors of the Journal for work done: Motion was made and carried that this recommendation be adopted.

#### Report of Committee on Cancer

1. To reaffirm the activities of the Cancer Committee: Motion was made and carried that the work of the Cancer Committee be continued.

2. To appropriate two hundred dollars (\$200.00) for expenses for the year 1940: Motion was made and carried that this recommendation be referred to the Budget and Finance Committee.

3. That the Secretary-Treasurer write a letter to the newspapers in Alexandria, Bossier City, Lake Charles, Monroe and Shreveport which have published articles on cancer control and to the radio stations in Alexandria, Lake Charles, Monroe, Baton Rouge, and New Orleans which have given time for radio talks on cancer, thanking them for their cooperation. It is also recommended that a letter of thanks be sent by the Secretary-Treasurer to Dr. J. A. O'Hara, President of the Louisiana State Board of Health, for the donation of space in the Journal for the publication of monthly articles on the subject of cancer: Motion was made and carried that this recommendation be adopted.

4. That the Cancer Committee be authorized to make a study of the facilities for treatment of cancer patients in the state and make a report to the Executive Committee for consideration and action: Motion was made and carried that this recommendation be accepted.

#### Report of Committee on Maternal Welfare

1. That the incoming administration be requested to appoint at least one physician on the State Hospital Board: Approved.

2. That the work of this committee be continued and that the incoming President be requested and empowered to appoint the members of the Committee on Maternal Welfare: Motion was made and carried that the work of this committee be continued.

3. That the Committee on Maternal Welfare be established as a standing committee of the State Society: Motion was made and carried that the By-laws be amended so as to make the Maternal Welfare Committee a standing committee of the Society.

4. The committee recommends that the House of Delegates give this matter (routine Wassermann or other suitable test for syphilis on every pregnant woman) its earnest consideration, with reference to the proper committee of the Society, if deemed ad-

visable: Motion was made and carried that the Louisiana State Medical Society go on record as continuing to advise the use of the Wassermann reaction in all pregnant women.

#### Report of Committee on Mental Health

1. A psychopathic department in Charity Hospital in New Orleans, with a qualified psychiatric, medical and nursing staff and adequate and modern equipment for the observation of patients and the treatment of temporary mental conditions: Motion was made and carried that this, as well as the other six recommendations made by the Committee on Mental Health be referred to the committee which will confer with Mr. Jones in regard to management of state institutions.

2. The development of some centralizing medical commission with supervisory capacity over all state hospitals, homes and colonies. The institution of civil service in the medical staffs of these institutions.

3. Increase and improvement in the facilities of the Feeble-minded Colony.

4. Special provisions for the care of epileptics.

5. Provide for licensing of private hospitals to receive mental cases and establish suitable minimum standards of equipment and personnel for these hospitals, with proper supervision by the same commission that supervises the state hospitals.

6. Provide some means for country judges to have access to trained psychiatric advice.

7. Provide a psychiatric assistant for the coroners of large towns.

#### Report of Special Committee to Study Plan Proposed by the Louisiana State Board of Health for Venereal Disease Control

1. Appointment of a new Committee on Venereal Disease Control: Motion was made and carried that the report with recommendation, be adopted.

#### Report of Committee on Resolutions

1. That a copy of these resolutions be incorporated in the minutes of the meeting, a copy be given to the press, and a copy to the Bulletin of the Orleans Parish Medical Society and to the New Orleans Medical and Surgical Journal: Motion was made and carried that the report be accepted and the recommendations contained therein be carried out.

#### Report of Louisiana State Board of Medical Examiners

1. That Dr. E. L. Leckert, whose term expires in August, 1940, be recommended for reappointment to succeed himself: Motion was made and carried that Dr. Leckert be recommended. Motion was also made and carried that the name of Dr. E. L. Zander be recommended as an alternate.

The following reports which did not contain recommendations were accepted as presented: Re-

ports of Secretary-Treasurer, Council, Councilors, Delegate to 1939 meeting of American Medical Association, Committees on Care of the Indigent Physician, Health and Public Instruction, Hospitals, Journal, Medical Defense, Medical Education, Public Policy and Legislation, Scientific Work, Venereal Disease Control, Walter Reed Memorial; Advisory Committee to Woman's Auxiliary and Committee to Prepare a History of the Louisiana State Medical Society.

A committee was appointed by the Chairman to draw up resolutions of sympathy and send to Dr. Vaughan's widow.

Dr. E. C. Ferguson, Fraternal Delegate from Texas, was welcomed to the meeting and made a short talk, bringing greetings from his state association.

A communication concerning the Eighth American Scientific Congress to be held in Washington in May, 1940, under the auspices of the Government of the United States, received from Secretary Cordell Hull, was presented. Motion was made and carried that the communication be received and the President of the Society nominate, at any opportune moment, some men qualified and whom he deems would like to attend, to represent the Society.

A resolution was introduced, concerning appointment of provisional administrators for the state hospitals, pending passage of mature legislation. It was stated, when offered, that it was desired that this resolution supplement the president's plan and be referred to the Legislative Committee. Motion was made and carried that the resolution be accepted.

Motion was made and carried that a Committee on Child Health be appointed.

Motion was made and carried that the President appoint a Committee on Tuberculosis.

Amendments to the Charter, Constitution and By-laws, as offered by a special committee from the Executive Committee, deleting the phrases indicating, as one of the purposes of the Society, guarding and fostering material interests of its members, was presented. Motion was made and carried that proper steps be taken to make the changes suggested in the Charter, Constitution and By-laws.

Motion was made and carried that the House of Delegates go on record as condemning, in general, the activities of the State Hospital Board as now constituted and that Governor-elect Jones be notified of this action for his guidance.

A bill in reference to the sale, gift, barter, exchange or distribution of amytal, luminal, veronal, etc., was presented and motion was made and carried that this bill be adopted with the recommendation that it be referred to the Legislative Committee.

Motion was made and carried that the suggestion that three scientific sections instead of two be held

simultaneously at the annual meetings of the Society be referred to the Executive Committee and that steps be taken to amend the constitution, if the plan is thought advisable by the Executive Committee.

Mrs. Harry Thompson, Commander of the Louisiana Division of the Women's Field Army of the American Society for the Control of Cancer, was granted the privilege of the floor and she thanked the doctors for their cooperation in the work of the Women's Field Army and requested that they continue to support this work.

Motion was made and unanimously carried that the next meeting be dedicated and named the Fred J. Mayer meeting of the Louisiana State Medical Society.

The following officers were elected:

President-elect: Dr. King Rand.

First Vice-President: Dr. H. Ashton Thomas.

Second Vice-President: Dr. D. J. Murphy.

Third Vice-President: Dr. D. T. Martin.

Secretary-Treasurer: Dr. P. T. Talbot.

Councilor First District: Dr. H. E. Bernadas.

Councilor Second District: Dr. D. N. Silverman.

Councilor Fourth District: Dr. M. D. Hargrove.

Councilor Fifth District: Dr. W. A. Rodgers.

The following members of committees were elected:

Scientific Work: Dr. P. T. Talbot, Chairman; Drs. A. E. Fossier and F. E. LeJeune.

Public Policy and Legislation: Dr. Roy B. Harrison, Chairman; Drs. H. B. Alsobrook and Rhett McMahon (and President and Secretary of Society).

Journal: Drs. L. J. Menville and W. H. Perkins.

Medical Defense: Dr. Chaillé Jamison, Chairman.

Health and Public Instruction: Dr. F. R. Gomila, Chairman; Drs. M. H. Foster, J. Q. Graves, J. K. Griffith and D. T. Martin.

Hospitals: Dr. J. T. Nix, Chairman; Drs. J. L. Scales, J. E. Walsworth, L. B. Crawford and L. O. Clark.

Delegate to A. M. A. 1941-42: Dr. L. J. Menville.

Alternate to A. M. A. 1940-41: Dr. George Wright.

Alternate to A. M. A. 1941-42: Dr. C. L. Peacock.

Chairman, House of Delegates: Dr. Val H. Fuchs.

Vice-Chairman, House of Delegates: Dr. A. W. Martin.

Invitation was accepted to hold the 1941 meeting in Shreveport.

Respectfully submitted,

P. T. Talbot, M. D.  
Secretary-Treasurer

## COMMITTEE ON MEDICAL DEFENSE

There have been two cases presented to the Committee on Medical Defense since the 1939 meeting of the State Society. These were submitted by the Orleans Parish Medical Society, for two of their members, in September, 1939. All material concerning these cases was referred to our attorney who advised that steps would be taken to protect the doctors in question.

In June, 1939, we were advised by our attorney that he had filed exceptions on behalf of a doctor of Bogalusa, whose case was referred to him in March of the same year.

On October 26, 1939, we received a communication from our attorney advising that his exceptions of no cause of action, filed for one of our members from Rapides Parish, had been maintained and that the plaintiff had been allowed an appeal to the Court of Appeal. He stated also that he would prepare the necessary material and orally argue the case when it is tried in an effort to protect the doctor's interests in every way possible.

Attached to the original report is a financial report of the Medical Defense Savings Account for 1939 and also a list of the securities held in the Trust Department of the Whitney National Bank for the Medical Defense Fund, as of December 31, 1939.

Respectfully submitted,  
S. Chaillé Jamison, M. D., Chairman.

REPORT OF COMMITTEE ON RESOLUTIONS  
1940

Whereas, The Louisiana State Medical Society has enjoyed one of its outstanding and successful meetings, and

Whereas, The success of this meeting is due to cooperation of several individuals and organizations, We therefore offer the following resolutions of cooperation:

1. To Dr. H. Ashton Thomas, General Chairman of the Committee on Arrangements, for his generous and untiring efforts which have contributed greatly to the success of the meeting.

2. To the Orleans Parish Medical Society, host of the meeting, for their splendid cooperation and the excellent manner in which the convention was conducted.

3. To the efficient staff of the Secretary's office and the Secretary-Treasurer whose careful preparation of the details of the meeting contributed much to its smooth operation.

4. To Dr. King Rand, Chairman of the House of Delegates, for the efficient and orderly manner in which he conducted the meeting of the House of Delegates.

5. To the Woman's Auxiliary of the Louisiana State Medical Society whose wholehearted support and interest added considerably to the meeting.

6. To the scientific and commercial exhibitors whose splendid displays greatly enhanced the excellence of the meeting.

7. To the press of New Orleans for their interest and assistance in giving space for news of the meeting and of various personages in attendance.

8. To Mr. Sam Fowlkes, convention manager, the personnel of his office, and the Roosevelt Hotel for the many courtesies extended and for their cheerful and willing attention to the innumerable calls for assistance.

9. To the Association of Commerce for their invaluable assistance at the registration desk.

10. To the members of the State Society who attended the meeting and whose interest and enthusiasm made the meeting a success.

We recommend that a copy of these resolutions be incorporated in the minutes of the meeting, a copy be given to the press, and a copy to the Bulletin of the Orleans Parish Medical Society and to the New Orleans Medical and Surgical Journal.

Respectfully submitted,

J. W. Faulk, M. D., Chairman.  
R. C. Young, M. D., Member.  
A. W. Martin, M. D., Member.

## STATE MEDICAL GOLF TOURNAMENT

The annual golf tournament of the Louisiana State Medical Society was held at the Metairie Golf Club, New Orleans, on April 22-24. The winning scores and awards were as follows:

Low Gross: Dr. C. Gordon Johnson, New Orleans, 80, golf bag; Dr. Joseph D'Antoni, New Orleans, 81, radio; Dr. F. Temple Brown, New Orleans, 83, book.

Low Net: Dr. Ralph Riggs, Shreveport, 69, Boston bag; Dr. Frederick Boyce, New Orleans, 69, radio; Dr. M. D. Hargrove, Shreveport, 71, sport shirt.

Blind Holes: Dr. Albert Morgan, Crowley, first, weekend bag; Dr. A. D. Mangham, Elizabeth, second, zipper bag; Dr. Hugh Lawson, New Orleans, third, six golf balls.

Best Poker Hand on First Nine Holes: Dr. Kermit Brau, New Orleans, first, sterilizer; Dr. Jerome E. Landry, New Orleans, second, one quart Bourbon.

Best Poker Hand on Second Nine Holes: Dr. C. Herman Weinberg, New Orleans, first, fountain pen; Dr. C. P. Rutledge, Shreveport, second, sport slacks.

Hole-in-one on 12th Hole: Dr. Chester Fresh, New Orleans, 9½ feet from hole, blood pressure apparatus.

Hole-in-one on 17th Hole: Dr. Val Fuchs, New Orleans, 6½ feet from hole, thermos bowl.

Best Score on Five Par Holes: Dr. W. C. Rivenbark, New Orleans, first, reading lamp; Dr. Jack Strange, New Orleans, second, electric fan; Dr. J. H. Musser, New Orleans, third, six golf balls.

Kickers: Dr. W. P. Bradburn, New Orleans, 78, onyx desk set; Dr. Ralph Christman, New Orleans, 80, sport shirt; Dr. H. Ashton Thomas, New Orleans, 80, Herbsaint; Dr. J. Kelly Stone, New Orleans, 80, six golf balls; Dr. Charles B. Odom, New Orleans, 90, six golf balls; Dr. L. A. Fortier, New Orleans, 90, sport shirt.

Golf prizes were given with the compliments of the following firms: American Drug Store, Baumann's Surgical, Graff's, D. H. Holmes, Katz & Besthoff, Ltd., Labiche's, Inc., Legendre's, Inc., Loubat's, I. L. Lyons, Maison Blanche, J. A. Majors, Meyer Bros., McKesson-Parker-Blake, Porter's, State Drug Store, Surgical Equipment Co., Van Pelt and Brown, of Richmond, Va., Walgreen's, and Waterbury's Drug Store.

#### AVOYELLES PARISH REPORT ON GROUP PRACTICE UNDER FARM SECURITY ADMINISTRATION

As a matter of record and to show other country doctors throughout the United States the results of voluntary group practice for the F. S. A., the following report speaks for itself:

Beginning April 1, 1939, eleven of the thirteen doctors in Avoyelles Parish, Louisiana, agreed to serve the F. S. A. members who wanted to belong to the medical group. Of 400 families in the F. S. A., approximately 250 joined. They were assessed on amount varying from \$10.00 to \$24.00 per year for medical services and drugs. The entire amount was put into a fund from which the doctor bills were to be paid. The patients were to have their choice of any doctors belonging to the group and merely had to present their F. S. A. medical card to get treatment and drugs.

The doctors had to belong to the parish medical society to be eligible. Regular fees were charged as follows: Office visit, including medicine, \$2.50; house call, including medicine, \$3.50, twenty five cents additional for each mile after two miles; obstetrical cases \$25.00; minor survey \$5.00; fractures \$15.00 to \$25.00.

The doctors agreed to give it a fair trial for a period of one year. The bills were sent to the representative of the doctor's group every month for checking, who in turn sent them to the secretary of the F. S. A.

The total amount in the fund was \$3200.00; this was divided into 12 installments of \$266.50 each. The total doctors' bills were added together and the doctors received, in proportion, their share of the \$266.50. The total bills submitted were \$5800.00. The total amount paid was \$3200.00, leaving a collection average of 58 per cent. Of this amount the doctor had to pay for the drugs which in most cases amounted to 33 per cent of the collected amount. That left the doctor about 36 per cent average collections. The average doctor booked \$527.00 for the year and collected \$291.00, of which \$100.00 went to the druggist.

At the last meeting of the Society it was the unanimous opinion of the doctors that they could not make a living in their private practice collecting 36 per cent of the work done and therefore did not feel justified in continuing the F. S. A. practice any longer. As a whole the F. S. A. patients did not abuse the fact that they could get medical services at any time. The doctors tried to keep unnecessary visits at a minimum and do as few house visits as possible.

The only solution would be to increase the amount charged each family which would not be possible for this group.

The doctors decided there was not any advantage over routine private practice; in fact they all preferred to charge and collect from each patient as an individual.

#### OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting of the Society, held at the Frances Hotel, May 3, 1940, at 5:30 p. m., was called to order by the president, Dr. D. T. Milam.

The following papers were presented by members of the staff of Louisiana State University School of Medicine: "The Surgical Management of Biliary Tract Disease" by Dr. F. F. Boyce, Assistant Professor of Surgery; "The Treatment of Pneumonia" by Dr. J. O. Weilbaeher, Jr., Assistant Professor of Medicine.

A banquet was then served after which the scientific program was resumed: "The Management of Stubborn Urinary Tract Infections" by Dr. H. T. Beacham, Assistant Professor of Urology; "Toxemias of Pregnancy" by Dr. R. E. Arnell, Senior Assistant Professor of Obstetrics and Gynecology.

L. L. Titche, M. D., Sec.

#### COMPONENT SOCIETY OFFICERS 1940

##### FRANKLIN PARISH

President: Dr. J. N. Bostick, Gilbert.

Vice-President: Dr. N. E. McElwee, Jr., Crowville.

Secretary-Treasurer: Dr. R. E. Applewhite, Winnsboro.

Delegate: Dr. H. T. Rogers, Winnsboro.

##### ST. LANDRY PARISH

President: Dr. E. L. Landry, Opelousas.

Vice-President: Dr. J. J. Stagg, Eunice.

Secretary-Treasurer: Dr. S. J. Rozas, Opelousas.

#### NEWS ITEMS

At the recent meeting of the Louisiana-Mississippi Ophthalmological and Otolaryngological Society, Dr. Francis E. LeJeune, of New Orleans, retired as president and was succeeded by Dr.

D. C. Montgomery, of Greenville. Dr. H. N. Blum, of New Orleans, was selected as secretary.

The annual meeting of the Louisiana Coroners' Association was held Monday, April 22, just preceding the meeting of the Louisiana State Medical Society. Dr. C. Grenes Cole was re-elected president; Dr. J. B. Hall, of Bossier, was chosen first vice-president; Dr. C. J. Barker, Thibodaux, second vice-president, and Dr. L. L. Ricks, Independence, secretary-treasurer.

Dr. Ambrose H. Storck recently addressed the Lauderdale County Medical Society at its meeting in Meridian, Miss. The subject of his talk was "Diseases of the Gallbladder and Biliary Tract."

It has been announced in New Orleans papers that Dr. Sam Kerlin has been appointed by Governor Jones as Superintendent of the Shreveport Charity Hospital.

Dr. Walter J. Otis and Dr. P. H. Jones, both of New Orleans, are two of the seven new appointees to the board of eight of the East Louisiana State Hospital.

#### MEDICAL LIBRARY ASSOCIATION

The forty-second annual meeting of the Medical Library Association will be held at the University of Oregon Medical School, Portland, June 25-27, under the presidency of Col. Harold W. Jones of the Army Medical Library, Washington, D. C. Hotel headquarters will be at the Heathman. The program will include talks on the literature of epidemiology of plague, tularemia and Rocky Mountain spotted fever; a symposium on investigations in local medical history, and problems in bibliography based on a study of terminology in the field of nutrition.

#### AMERICAN HEART ASSOCIATION

The annual meeting of the American Heart Association will be held in New York City, June 7-8, at the Hotel Roosevelt. The first day of the meeting will be devoted to a program of subjects relative to the heart; the second day meeting will be under the auspices of the Section for the Study of the Peripheral Circulation.

#### AMERICAN CONGRESS OF PHYSICAL THERAPY

The nineteenth annual scientific and clinical session of the Congress will be held September 2-6, 1940 at the Hotel Statler, Cleveland, Ohio. The mornings will be devoted to the annual instruction course, enabling attendance at both the course and scientific sessions which will be given in the afternoons and evenings.

#### PAN-AMERICAN CONGRESS OF OPHTHALMOLOGY

Plans for a Pan-American Congress of Ophthalmology to be held at the Hotel Cleveland, Cleveland, Ohio, October 11-12, have been announced. The congress will be sponsored by the American Academy of Ophthalmology and Otolaryngology, an organization of more than 2,500 specialists in diseases of the eye, ear, nose and throat, which will hold its annual convention immediately preceding the Pan-American gathering.

The Medical Association of the State of Alabama begs to call to your attention the following important resolution adopted by it on April 18, 1940:

*WHEREAS*, There is a growing tendency to patent drugs in the name of universities and foundations in connection with universities; and

*WHEREAS*, These patents are presented to the institutions by the discoverers; and

*WHEREAS*, The discoverers of the products are usually medical men; and

*WHEREAS*, The effect of the patents is to increase the price of the drugs because of the royalties imposed by the said foundations; and

*WHEREAS*, A considerable proportion of patients in need of the new products are prevented from buying them by reason of the necessarily high prices asked; and

*WHEREAS*, This hardship is imposed upon the needy public through the acts of the discoverers under the guise of foundations:

*BE IT RESOLVED*, That The Medical Association of the State of Alabama condemns as unethical the patenting of drugs or medical appliances for profit whether the patent be held by a physician or be transferred by him to some university or medical research foundation, since the result is the same, namely, the deprivation of the needy sick of the benefits of many new medical discoveries through the acts of medical men; and

*BE IT FURTHER RESOLVED*, That copies of these resolutions be sent to the leading medical associations and journals, to the leading medical colleges of the United States and Canada, and to the secretaries of all state medical associations as well as to that of the District of Columbia.

Douglas L. Cannon, M. D., Sec.

#### DEDICATION OF OSLER MEMORIAL AT BLOCKLEY

The old autopsy house where Osler worked at Blockley has been restored as the Osler Memorial Building, and will be dedicated on the grounds of the Philadelphia General Hospital, at Curie Avenue, near 34th and Pine streets, Philadelphia, at 2 p. m. on June 8, 1940.

Original furnishings, including the necropsy table, have been collected. The painting by Dean Cornwell, N. A., of New York, entitled "Osler at

old Blockley," later to be hung in the building, will be on exhibition during the celebration.

There are facilities in the building for the housing and preservation of relics of old Blockley, as well as Osleriana. The committee would welcome any additions to this collection.

A cordial invitation is extended to those who are interested, and especially those who are planning to attend the American Medical Association Convention in New York City, June 10-14.

#### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reported that for the week closing April 13, there were listed 144 deaths in the City of New Orleans, one less than the previous week. Of these deaths, 79 occurred in the white population and 65 in the negro. Infant deaths this week were 10, 70 per cent of which were negro babies. The next week, which closed April 20, there were 145 deaths, one more than the previous week. Responsible for these deaths were 96 white people and 49 black; there were only nine infant deaths listed and, as happens rarely, the white babies died in greater number than the black. The week ending April 27 showed quite a drop in the number of deaths, only 120 being recorded, divided 81 white and 39 negro. There were eight children who died this week who were under one year of age. The following week the number of deaths was 135 with 12 infant deaths; the division for this week was 101 white and 34 negro. The last few weeks for which the figures are available show rather a sharp drop in the number of deaths. This may bring down the total death rate in the city which has, for the first eighteen weeks of the year, been considerably higher than last year. There have been so far 488 more deaths than in 1939.

#### INFECTIOUS DISEASES IN LOUISIANA

For the week terminating April 13, the fifteenth week of the year, the Bureau of Epidemiology of the Louisiana State Board of Health reported that syphilis, as is its habit, led all reported diseases with 168 cases. Other diseases which occurred in figures greater than ten included: 68 cases of pneumonia, 43 of whooping cough, 42 of pulmonary tuberculosis, 25 of influenza, 22 of cancer, 21 of gonorrhoea, and 12 of chickenpox. Of the rarer diseases reported this week, there were three cases of tularemia and one of cerebrospinal meningitis. For the following week there were approximately the same number of cases of syphilis as in the preceding week, namely, 160. Other frequently reported diseases included 44 cases of pulmonary tuberculosis, 27 of pneumonia, 26 of gonorrhoea, 13 of cancer, and 11 of trachoma. All of these eleven cases of trachoma were found in West Carroll Parish; evidently, there was an intensive survey of the eyes of the people in this parish. This is of interest because other cases might be

found in neighboring parishes and throughout the state. Trachoma is virtually never recorded; the incidence in previous weeks has been zero for a long period of time. There were also listed a case of smallpox from Lafayette, two of typhus fever from Iberia, and one of cerebrospinal meningitis from Rapides. For the seventeenth week of the year, which closed April 27, there were recorded 135 cases of syphilis, 63 of whooping cough, 40 of pulmonary tuberculosis, 33 of pneumonia, 25 of cancer, 22 of gonorrhoea, and 12 each of influenza and measles. Two cases of typhus fever were listed, one from Iberia and one from Lafayette Parish. The week which terminated May 4, there were recorded 184 cases of syphilis, 49 of pneumonia, 29 of pulmonary tuberculosis and cancer, 14 of influenza, and 13 of whooping cough. Again, two cases of typhus fever were placed in the weekly reports, one in Acadia and one in Orleans Parish. Two cases of meningitis were found, one arising in Avoyelles and one in Claiborne Parish. For the nineteenth week of the year, which closed May 11, there were listed 164 cases of syphilis, 45 of pneumonia, 39 of cancer, 34 of pulmonary tuberculosis, 31 of whooping cough, 19 of gonorrhoea, 12 of chickenpox, and 11 of measles. Two instances of tularemia were discovered, one in Acadia and one in East Baton Rouge. It is pleasing to report that for the past five weeks at no time have there been as many as five cases of typhoid fever reported and for this week there was only one.

#### JOHN ALEXANDER DEVRON (1874-1940)

Dr. John A. Devron died in New Orleans on Monday, May 13, after a comparatively short illness. For many years he had been a loyal and faithful member of both state and parish medical societies.

Dr. Devron graduated from Tulane University in 1896 and since 1924 had been connected with the Department of Dermatology.

The tragic deaths of both of his two doctor sons undoubtedly played a part in hastening his last illness. An unaffected, kindly gentleman, his character endeared him to his many friends and patients.

#### WOMAN'S AUXILIARY Louisiana State Medical Society

Mrs Aynaud F. Hébert was elected president for 1941 of the Woman's Auxiliary to the Louisiana State Medical society at the meeting held in New Orleans, April 24, 1940. Mrs. Roy Carl Young, of Covington, was inaugurated president for this year. Mrs. S. M. Blackshear, president, presided at the meeting. Other officers elected were Mrs. Joseph E. Heard, of Shreveport, first vice-president; Mrs. M. H. Foster, of Alexandria, second vice-president;

Mrs. Courtland P. Gray, of Monroe, third vice-president; Mrs. Willard Ellender, of Houma, fourth vice-president; Mrs. P. A. Donaldson, of Reserve, recording secretary, and Mrs. M. C. Wiginton, of Hammond, treasurer.

One of the highlights of the meeting was the presentation of small gold pins to the past presidents of the auxiliary. Mrs. A. D. Tisdale, of Monroe, made the presentation.

The past presidents in order of their seniority of office are Mrs. Oscar Dowling, who organized the auxiliary and was its first president; Mrs. A. A. Herold, of Shreveport; the late Mrs. H. W. E. Walther; Mrs. R. T. Lucas, of Shreveport; Mrs. John Musser, of New Orleans; Mrs. T. H. Watkins, of Lake Charles; Mrs. Hermann B. Gessner, of New Orleans; Mrs. J. B. Vaughan, of Monroe; Mrs. George Feldner, of New Orleans, and Mrs. Fred G. Ellis, of Shreveport.

The meeting opened with an invocation by Rev. John J. Adams, followed by a welcome address by Mrs. Charles R. Hume, to which Mrs. Erwin L. Gill, of Shreveport, responded.

The musical program for the day was given by Mrs. Plauché Villere at the piano and Miss Edith B. Wolfe, soprano. Benediction was then offered by Rabbi Mendel Silber.

Councilors chosen are Mrs. George D. Feldner and Mrs. Roy Harrison, of New Orleans, first and second congressional districts, respectively; Mrs. Robert Young, Abbeville, third congressional district; Mrs. Erwin Gill, Shreveport, fourth congressional district; Mrs. A. D. Tisdale, Monroe, fifth congressional district, and Mrs. A. W. Martin, Bogalusa, sixth congressional district. (Reprinted from the New Orleans Item).

---

## BOOK REVIEWS

*Treatment of Some Common Diseases (Medical and Surgical)*: By Various Authors, Edited by T. Rowland Hill, M. D. (Lond.), M. R. C. P. (Lond.). Baltimore, The Williams and Wilkins Company, 1939. Pp. 398; 90 illus. Price \$5.00.

This book, prepared by members of the honorary staff of the Southend-on-Sea General Hospital, aims to present to the general practitioner the modern treatment of some common or important disorders. It is not designed to be a systematic text or work of reference, but rather a series of practical monographs to be read with ease and enjoyment.

The following subjects are discussed: Angina pectoris, heart failure, pleurisy, broncho-pulmonary suppuration, anemia, cerebral vascular disease, digestive disorders of infancy and childhood, prophylactic treatment by active immunization, malignant disease of the pharynx, obstructive jaundice due to malignant disease, hemorrhage from the intestinal tract, enlargement of the prostate gland, infections of the face and neck, suppurative lesions about the knee joint, head injury and its complications, uterine hemorrhage, delay in labor, shock during anesthesia, pre-anesthetic medication, x-rays in the treatment of malignant disease, injuries to the skin and mucous membrane in radiation therapy, moles, warts, and angiomas, ocular complications of some common disorders of the skin, earache, dental caries, postoperative wound complications.

In some sections treatment alone is considered; in others, and these are superior, emphasis is placed on the clinical picture and accurate diagnosis. The allotment of space is poorly apportioned. The treatment of cardiac infarction is dismissed in less than one page, whereas twenty pages are devoted to the technical problems in-

volved in the surgery of pharyngeal malignancies. The inclusion of such subjects as suppurative disease about the knee joint, radiation injuries to skin and mucous membranes, and ocular complications of some common skin disorders, and the omission of such important topics as the common skin diseases and infections of the hand detract greatly from the value of the book.

In general, the therapy recommended is well recognized and sound. However, in many chapters, discussion is far too brief and superficial. In addition, drugs are often called by their British proprietary names alone, without statement as to their exact nature.

There are 90 illustrations, including a photograph of the tombstone of Benjamin Jesty. The arteriograms demonstrating intracranial aneurysms are excellent; but a false impression of the efficacy of x-ray therapy in carcinoma of the bronchus is conveyed by other illustrations.

With more comprehensive one-volume texts on medicine, surgery, or treatment available to the general practitioner, this volume is not likely to attract many purchasers, especially in this country.

EDWARD MATTHEWS, M. D.

---

*Relation of Trauma to New Growths, Medico-legal Aspects*: By R. J. Behan, M. D. Baltimore, The Williams and Wilkins Company, 1939. Pp. 425. Price \$5.00.

Dr. Behan's book is an unusual one. In it he has accumulated much of the evidence bearing on the subject of the relationship of trauma to neoplasms. Both the medical and legal aspects of this problem are presented. In this respect his book is a mine of information, a veritable library



that enables the interested reader to save days of bibliographic searching and reading.

The subject matter, originally only of academic significance, has assumed increasingly greater importance in recent years, paralleling the introduction and growth of social legislation and workmen's compensation laws in the various states. Dr. Behan has had wide experience as a medical expert in matters relating to injuries governed by these laws. From this experience, and from the knowledge obtained while he was writing his book on "Cancer," stems the present work. He dedicates his book "to the harrassed doctor" on the witness stand, and hopes through it to enable the medical profession to make better witnesses.

While the book goes a long way toward accomplishing this purpose, it is unfortunate that Dr. Behan has not given more generously of his own opinions. Usually he summarizes the positive and negative sides of a given problem from the medico-legal aspects, without thereupon stating his own views or coming to any conclusion. The reader is therefore left with a kind of "yes" and "no" feeling about the particular problem, as if the place for settling the question involved is to be another court of law. On the other hand this lack of definite conclusions probably results from the opinion, unexpressed but indicated between the lines, that each case must be decided on its own merits, with the issues to be clearly defined and not based on preposterous suppositions or ridiculous probabilities.

To accomplish these objectives, chapters are devoted to such interesting subjects as: changes in affected tissues; experimental traumatic cancer; effects of single trauma; the time factor and latent period; influence of trauma in changing a non-malignant into a malignant tumor; aggravation of growth already present; influence of trauma on metastases; effects of biopsy.

Dr. Behan recognizes the fact that there are two groups among doctors: One believes that there is no relationship between trauma and cancer; the other believes, and probably rightfully so, that an undetermined but yet a definite relationship can at times be shown to exist. Dr. Ewing has stated: "Traumas reveal more malignant growths than they produce." And: "So strong is the evidence against the purely traumatic origin of most cancers that one must assume the attitude that a malignant growth claimed to be traumatic arises not in normal but in previously altered tissues." Nevertheless, Dr. Behan cites example after example in which courts awarded damages based on the production, or aggravation, of cancer resulting in relationship to injury.

To guide medical thinking in these problems, Dr. Behan gives the following postulates:

1. There must be definite proof that the accident really happened.

2. A clear description of the exact injuries must be obtained.

3. It is necessary to prove that prior to the accident there was integrity of the injured part.

4. The trauma must be of sufficient severity to cause appreciable disturbance to the tissues.

5. Disturbances should be noticed in the injured area immediately after injury.

6. There should be a direct continuous bridging of symptoms in this area from the time of injury to the time the cancer is discovered.

7. The time factor must be considered, and the time for the development of the cancer must be within the realm of probability.

DANIEL M. KINGSLEY, M. D.

*Health Officers' Manual:* By J. G. Geiger, M. D., Dr. P. H., Sc. D., LL. D. Philadelphia and London, W. B. Saunders Company, 1939. Pp. 148; illus. Price \$1.50.

This manual is a short descriptive account of the duties and functions of a health authority. Discussions are presented on the principles of organization of a Public Health Department, its obligations, responsibilities and technics. As such it is an excellent reference treatise.

As a health officers' handbook, implying a ready reference manual, it is somewhat disappointing not to find more detail in regard to such necessary references as technics in disinfection, disposal, pasteurization, immunization and statistics. These might well have been substituted for the slightly lengthy paragraphs on the philosophy of health control under each heading.

The sections on isolation, quarantine and school exclusion are just what the health officer wants to look up.

The book is highly informative and offers a concise resumé of public health work for physicians and laymen alike.

W. H. PERKINS, M. D.

*You and Heredity:* By Amram Scheinfeld. New York, Frederick Stokes Co., 1939. Pp. 434. Price \$3.00.

The medical profession owes Dr. Scheinfeld a debt of gratitude for his outstanding work, both as an author and illustrator. He has simplified many complex conceptions of heredity in words and clever diagrams. He has publicized information which, if more generally known, would facilitate a better understanding of what the patient should expect of his ancestors as well as his physician.

Following a most readable explanation of conception, chromosomes and genes, the author analyzes, "What We Don't Inherit," that is, acquired characteristics. He then explains the genetics of sex, the Mendelian laws, color of eyes, hair and skin, as well as dominance and recessiveness in human features. The mechanism of multiple

births is discussed in words a high school student can easily understand. The Dionne quintuplets rightly receive their share of the honors.

The author then takes up, "The Black Genes," "Our Principal Enemies," "For Men Only," and other well titled chapters, which differentiate environment and heredity. Then follows summary tables showing the relation of diseases and defects to dominant, recessive, sex-linked, and other hereditary factors.

Dr. Scheinfeld's genetic analysis of famous living musicians should be of deep interest to physicians musically inclined. Of wider interest are the chapters on, "Sexual Behavior," "Race," "Ancestry," and "The Giddy Stork." If you are interested in the better understanding of human beings, read this book, and then read it again.

CHARLES A. BAHN, M. D.

*The Patient's Dilemma:* By Hugh Cabot, M. D. New York, Reynal & Hitchcock, 1940. Pp. 284. Price \$2.50.

This book, on "The Quest for Medical Security in America," represents the expression of the author's philosophy resulting from his examination and study of a group of nationally important and extremely difficult and complicated economic, social and professional problems which the people of the United States are endeavoring to solve.

Dr. Cabot has produced an impressive treatise, clear and definite in many respects and persuasive far beyond other writings on the subject. Apparently he believes that, with daring and imagination, the American people can enlarge their medical-economic frontiers to a point they cannot now foresee.

The author knows that modern scientific medicine is very efficient and very expensive. He is aware of the fact that doctors and politicians are sharply divided in their views on the methods to be employed in solving the vital issues involved, and that both groups are surrounded by powerful organizations which are also divided. Therefore, the vast and important subject under discussion must be looked at in all its implications.

Dr. Cabot offers no evidence that he has sought or considered the opinions of the rank and file of doctors. He does not satisfactorily explain and define the terms good and inexpensive medical care. He does not state that most patients do not know what good medical care is, where to find it, what it costs and who will pay for it. He offers little hope that the practice of medicine, in America, will continue as a private, individual profession free from political meddling and domination.

If the Federal government is going to help in clearing up "The Patient's Dilemma" it must remain an aid to, and not the means of, assisting those in need.

Perhaps the effect of the current controversy over adequate medical care at the lowest cost will

be wholesome because it might cause us to realize that there are significant elements in this question which no one has really thought out. Unless we get down to these points, the great and solemn referendum before us may be lost in an empty row between doctors, politicians and patients.

C. P. MAY, M. D.

*Medical Climatology; Climatic and Weather Influences in Health and Disease:* By Clarence A. Mills, Ph. D., M. D. Baltimore, Charles C. Thomas, 1939. Pp. 296. Price \$4.50.

The external factors of weather and climatic conditions that fundamentally affect human health and activity are presented. Suggestions are made as to the effect of these conditions upon human health and activity.

Mills discusses the use of natural and artificial climate in the treatment of disease.

The author is not dogmatic in his viewpoints and presents the subject matter in an interesting manner. This volume is a worth-while contribution to a phase of medicine which has received little attention.

SEBRON C. DALE, M. D.

#### PUBLICATIONS RECEIVED

The Commonwealth Fund, New York City: *Chemotherapy and Serum Therapy of Pneumonia*, by Frederick T. Lord, M. D., Elliott S. Robinson, M. D., Ph.D., and Roderick Heffron, M. D.

Duke University Press, Durham, N. C.: *The Compleat Pediatrician*, by Wilburt C. Davison, M. A., D. Sc., M. D.

Paul B. Hoeber, Inc., New York City: *Treatment of War Wounds and Fractures*, by J. Trueta, M. D.

Lea & Febiger, Philadelphia: *Clinical Parasitology*, by Charles Franklin Craig, M. D., M. A. (Hon.), F. A. C. S., F. A. C. P., Col., U. S. Army (Retired), D. S. M., and Ernest Carroll Faust, M. A., Ph.D.

The Macmillan Company, New York City: *Frontier Doctor*, by Urling C. Coe, M. D.

W. B. Saunders Company, Philadelphia: *Minor Surgery*, by Frederick Christopher, S. B., M. D., F. A. C. S.

The Williams and Wilkins Company, Baltimore: *Combined Textbook of Obstetrics and Gynaecology*, revised and rewritten by various authors. *The Treatment of Rheumatism in General Practice*, by W. S. C. Copeman, M. A., M. D., B. Ch. (Cantab.), F. R. C. P. (London). *Principles and Practice of Aviation Medicine*, by Harry C. Armstrong, B. S., M. D. *Essentials of Psychiatry*, by George W. Henry, M. D. *Standard Methods of the Division of Laboratories and Research of the New York State Department of Health*, by Augustus B. Wadsworth, M. D., Director. *Cyclopropane Anesthesia*, by Benjamin Howard Robbins, B. A., M. S., M. D. *Electrocardiography* by Chauncey C. Maher, B. S., M. D., and Paul H. Wosika, M. D., M. S.







UNIVERSITY OF CALIFORNIA  
MEDICAL CENTER LIBRARY

THIS BOOK IS DUE ON THE LAST DATE  
STAMPED BELOW

Books not returned on time are charged \$1.00 per volume after the third day overdue, increasing to \$1.00 per volume after the sixth day. Books not in demand may be renewed if application is made before expiration of loan period.

JAN 2 1941

JAN 23 1941

FEB 6 - 1941

FEB 24 1941

FEB 26 1941

MAR 18 1941

MAR 31 1941

AUG 1 1945

MAY 2 1945

MAY 31 1946

MAY 6 1947

MAY 2 1949

7 DAY

RETURNED

APR 26 1959

APR 17 1959

7 DAY

RETURNED  
MAY 27 1959  
MAY 21 1959

7 DAY

RETURNED

NOV 23 1955

NOV 18 1956

7 DAY

APR 21 1967

RETURNED

APR 21 1957

v.92 New Orleans medical and sur-  
 1939- gical journal. 50240  
 1940

<i>Q. J. M.</i>	JAN 2 1941	JAN 2 1941
<i>Gude</i>	JAN 22 1941	JAN 9 1941
<i>Linden</i>	FEB 6 1941	
<i>Kees</i>	FEB 24 1941	
		FEB 11 1941
	FEB 26 1941	FEB 24 1941
<i>A. L. ...</i>	MAR 18 1941	3-19
<i>Feldman</i>	MAR 27 1945	JAN
<i>Spetz</i>	Aug 1 '45	
<i>W. ...</i>	Aug 21	
<i>P. F. Bohy</i>	Mar	
<i>W. F. ...</i>		

50240

