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MENTAL DISEASE IN WARTIME HAWAII

R. D. KEPNER, M. D.

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TABLE OF CONTENTS

PREVENTIVE PSYCHIATRY IN RELATION TO THE TERRITORIAL HOSPITAL	PROGRESS IN INTERNAL MEDICINE
Richard DeMonbrun Kepner, M.D..... 7	Epidemiology of Poliomyelitis..... 29 S. E. Doolittle, M.D.
THE HONOLULU EMERGENCY POLIOMYELITIS HOSPITAL	RECENT ADVANCES IN SURGERY
Samuel M. Wishik, M.D..... 17	Transthoracic Subtotal Gastrectomy for Benign Ulcer of the Stomach..... 33 Rogers Lee Hill, M.D.
OBSERVATIONS ON POLIOMYELITIS IN HONOLULU AND ON THE MAINLAND	CLINICO-PATHOLOGIC COMMENT
S. F. Stewart, M.D..... 21	The Rh Factor: Its Clinical Importance..... 39 I. L. Tilden, M.D.
EDITORIALS	CIVILIAN HOSPITAL NEEDS II
The Significance of the Present Dengue Fever Epidemic 25	World Planning for Tuberculosis Control..... 45 Shortage of Tuberculosis Beds on Oahu..... 45 The Honolulu Hospital Situation in General... 46
Case Reports Solicited..... 27	REPORT OF DELEGATE TO A.M.A. MEETING 51
American Board of Obstetrics and Gynecology... 27	INDEX TO ADVERTISERS 54

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Preventive Psychiatry in Relation to the Territorial Hospital

An Analysis of Etiologic Factors in 538 Admissions

December 7, 1940—December 6, 1942

RICHARD DEMONBRUN KEPNER, M.D.

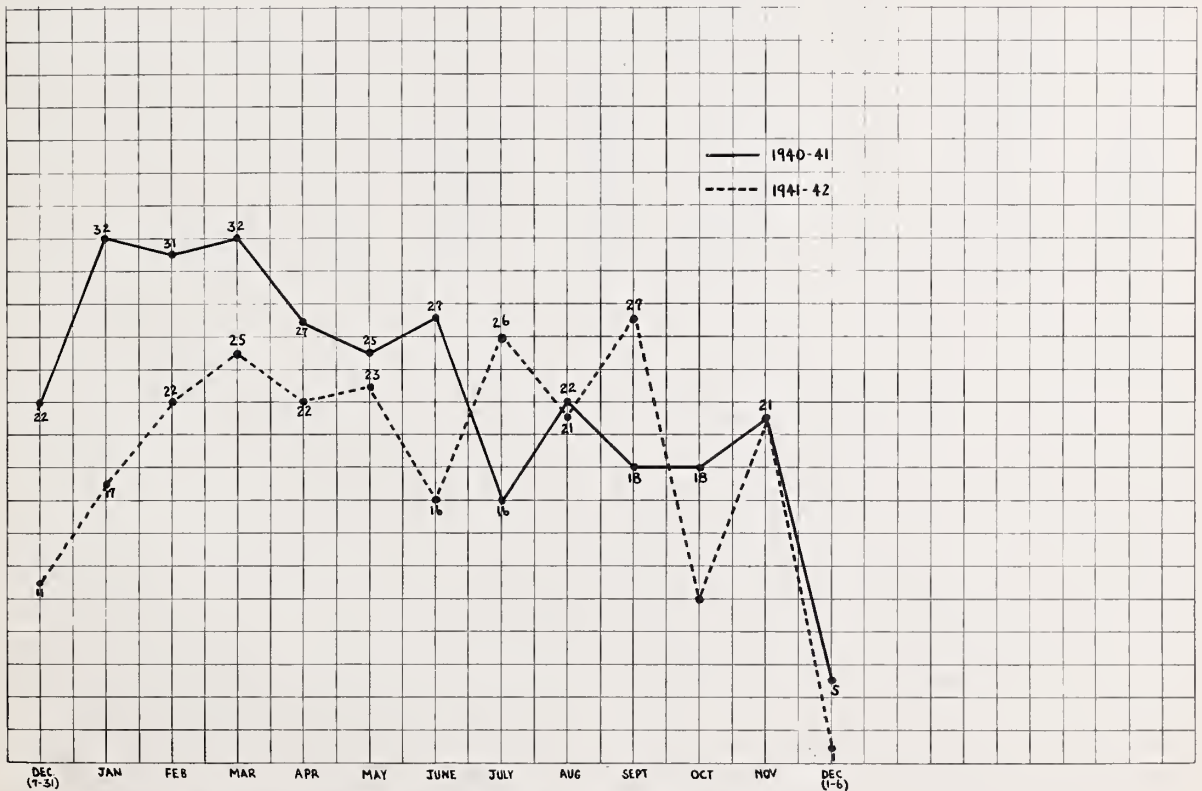
Kaneohe, Oahu

The prevention of mental illness and of consequent admissions of large numbers of patients to the Territorial Hospital each year should be a matter of grave concern to the entire community, lay and professional alike. Mental illness is a source of much suffering and disability for those unfortunately so afflicted, as well as the cause of much unhappiness, many broken homes, and social and financial handicap for the relatives of the patients. In addition it is a very expensive type of disease, not only for the relatively few patients who are able to pay the cost of their hospitalization, but also for the general public which must foot the rest of the bill, amounting to \$1,000,000 per biennium, not to mention the original investment of over \$1,500,000 in the plant.

It would seem that any contribution which might throw some light on the causes of mental illness as seen in the Territorial Hospital would be most valuable to the community as a whole. Obviously,

if mental illness is to be prevented it is vital to learn first just what the causes are in this Territory at the present time. This paper, therefore, approaches the subject of prevention from the standpoint of such etiologic factors as were recorded in the records of 538 patients admitted from December 7, 1940, to December 7, 1942. These years were selected because they are recent and because they represent a period of one year before and one year after the outbreak of the war in which we are now engaged. It was felt desirable to compare these two years to determine what, if any, difference the war might have made in the incidence, distribution, and etiology of such illness. Omitted from this survey are a few service personnel hospitalized here temporarily while awaiting further disposition.

The total admissions for this period are shown in Table I, which represents a decrease in 1941-42 from the previous year.



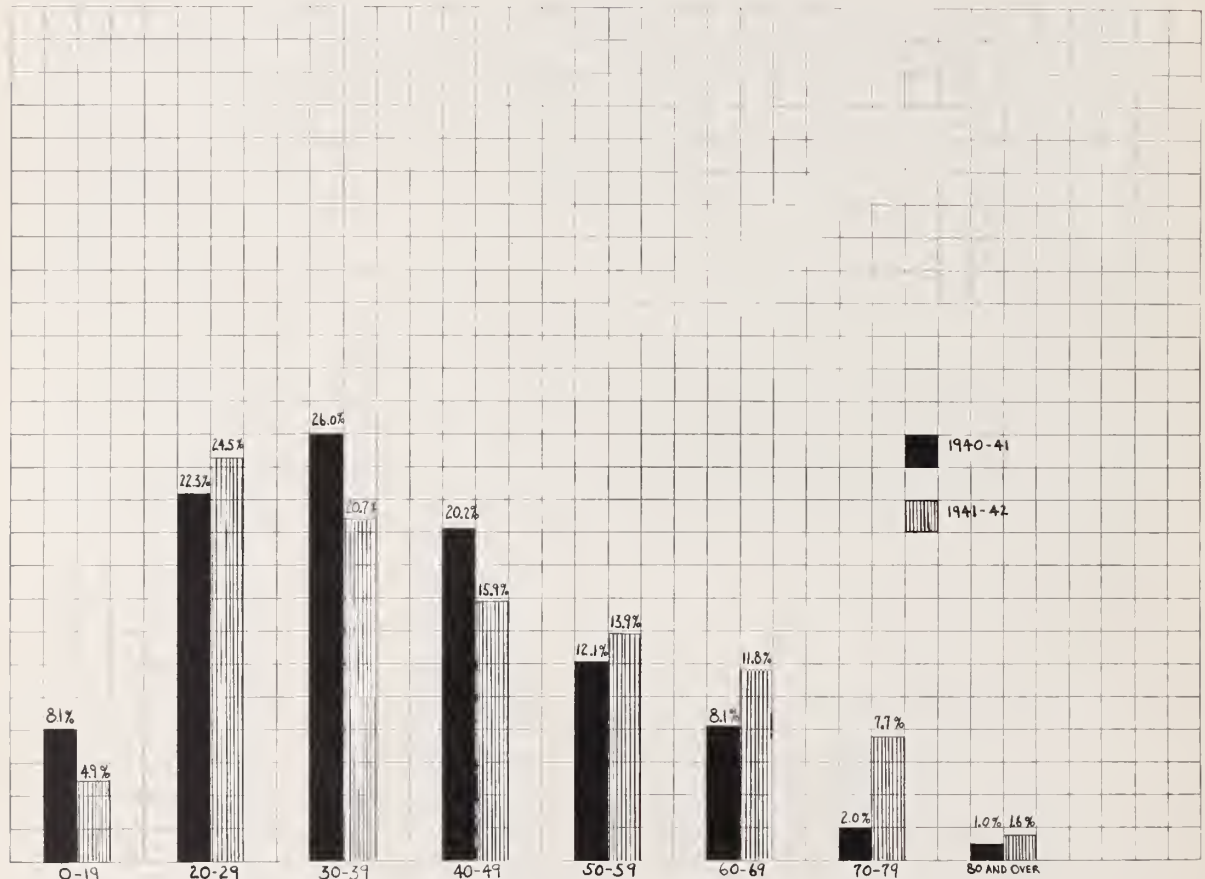
GRAPH I ALL ADMISSIONS BY MONTHS DEC. 7, 1940 TO DEC. 7, 1942

TABLE I. Admissions Dec. 7, 1940-Dec. 6, 1941;
Dec. 7, 1941-Dec. 6, 1942.

	1940-41	1941-42	1940-42
First Admissions	255	222	477
Readmissions	41	20	61
All Admissions	296	242	538

By months these cases were admitted as shown in Graph I, which shows no appreciable rise in any month.

By age groups these admissions are shown in Graph II, which shows a rather significant increase in admissions in the older age groups. In 1940-41, 11.1% of the admissions were 60 years of age or over, and 3.0% were 70 years or older; in 1941-42, 21.1% of admissions were 60 years or older and 9.1% were 70 years or above. The admissions in the other age groups were more or less comparable in the two years.



GRAPH II. PERCENTAGE OF ALL ADMISSIONS BY AGE GROUPS 1940-41 AND 1941-42

There were probably several reasons for the increase in the older age groups. Many patients who had previously been cared for at home did not obey the rules concerning blackout and curfew and had to be committed on that account. Other old folks had no one left at home to care for them, with all members of the family working and no hired help available for their further care at home or in other institutions. This increase was noted in all races to a certain extent, but relatively more in the Japanese group (Table II), possibly because under ordinary conditions Japanese are reluctant to commit the old folks, but prefer to care for them at home.

Due to certain restrictions in publishing population figures, it is impossible to list admissions by sex and to compare them intelligently with figures

in the general population. It may be said, however, that on the whole the incidence of mental disorder by sex in the various racial groups compares closely with the number of persons of that sex in the general population. The male-female ratio amongst the Caucasians, which had been higher than expected, showed a decrease in 1941-1942 chiefly because of the much smaller number of men alcoholics committed; at present this ratio is approximately in proportion to the population at large. The ratio in the Hawaiian group likewise fell somewhat because of a decrease in admissions due to alcohol and mental deficiencies; at present it is about the same as in the population at large. The Filipinos also showed some decrease in the male-female ratio, which is still about three times as high as it should be, for reasons unknown.

TABLE II. Number of All Admissions by Race and Diagnosis, 1940-41 and 1941-42.

	HAWAIIAN		PT.-HAWAIIAN		CAUCASIAN		CHINESE		FILIPINO		JAPANESE		OTHERS		ALL	
	1940-41	41-42	40-41	41-42	40-41	41-42	40-41	41-42	40-41	41-42	40-41	41-42	40-41	41-42	40-41	41-42
MENTAL DISORDERS																
General paresis	4	4	1	3	3	2		3	4	1	3	10	1	16	23	
With other syphilis of central nervous system		1	1	1		1	1							1	4	
With other infectious diseases											1				1	
Alcoholic		3		3	15	4			2	1				23	6	
Traumatic					2						1			3		
With cerebral arteriosclerosis	1	4		2	6	6		2		2	3	6	5	2	15	24
With convulsive disorders	1		2			2		1	1		3	1		7	4	
Senile	2	2		1	5	5		1	1		5	5	3	2	17	17
Involuntal					7	2		1	3	3	6	5	1	3	18	13
Due to other metabolic, etc. disease		1						1			1	1		2	2	
Due to new growth									1					1	1	
With organic changes of nervous system					1									1	1	
Manic-depressive	3	1	2	6	5	7	2	3	13	13	10	15	9	2	44	47
Dementia praecox	1	4	4	2	24	11	6	7	13	6	32	25	4	4	84	59
Paranoia and paranoid conditions					1								1		2	
With psychopathic personality									1		1			1	1	
With mental deficiency	2	2		3		3	1				1		1	4	9	
Psychoneuroses					1	1			1		1	3	1	3	5	
Undiagnosed	1	1		1	1	2				3		4		2	11	
Without psychosis	3		3	2	36	9	3	1			6	2	1	1	52	15
TOTAL	21	20	16	22	107	56	14	21	39	30	72	79	27	14	296	242

The male-female ratio increased somewhat in the Chinese, Japanese, and part-Hawaiian groups, due chiefly to an increase in the organic reactions, namely, paresis, cerebral arteriosclerosis, and senility (Table II). The Chinese and part-Hawaiians both have more men psychotics in proportion to women, than the Japanese, who are nearer the ratio in the population at large. "Other" racial groups showed an increase in the male-female ratio for unexplained reasons.

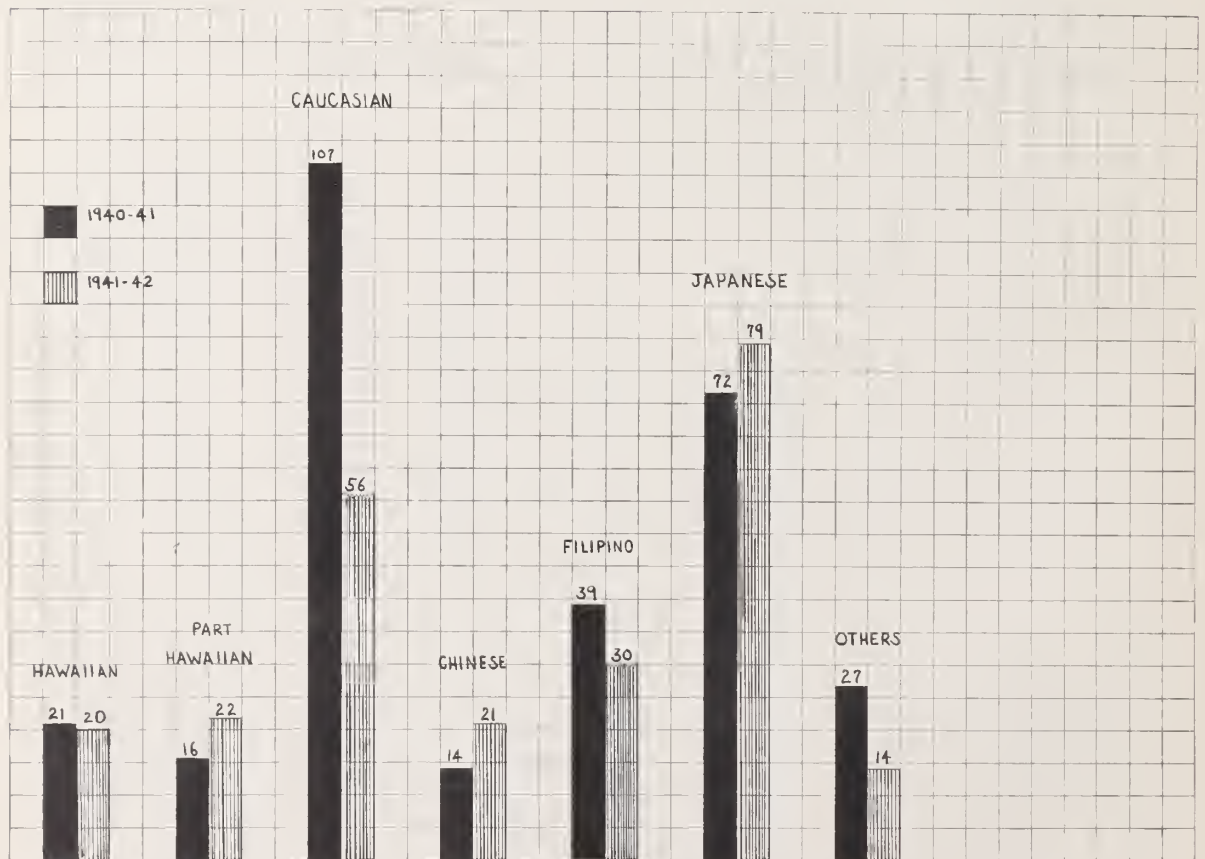
The number of admissions by race is shown in Graph III.

The most striking difference in admissions by race during these two years was a decrease in the number of Caucasians admitted in 1941-42. There was a drop from 107 to 56 in this racial group

chiefly due to a decrease in the number of alcoholics admitted. It is quite likely that increased employment removed the desire on the part of some to drink, but also undoubtedly true that many others either could not get liquor or were sent to jail. There was a decrease in this racial group from 55 to 15 in the total number of cases in which alcoholism was given as one of the precipitating or contributing factors.

TABLE 3. Incidence of Alcoholism in Caucasian Admissions, 1940-41 and 1941-42.

CAUCASIAN	ALCOHOLISM WITHOUT PSYCHOSIS	PSYCHOSIS DUE TO ALCOHOL	ALCOHOL CONTRIBUTING
1940-41	31	15	55
1941-42	5	4	15



GRAPH III. ALL ADMISSIONS BY RACE 1940-42

By and large, the admissions for the various racial groups during each year were more or less in proportion to the numbers of that group in the general population except in the case of the Caucasians and the Japanese. The former had consider-

ably more than their share in 1940-41, but this came down to about the expected number in 1941-42, due as mentioned chiefly to decrease in alcoholic commitments.

The latter (Japanese) showed an admission ratio for 1940-41 considerably less than would be expected from their numbers in the total population; in 1941-42, this rate increased definitely although it remained somewhat below their expected rate. The reason for this increase has been mentioned as due to increase in organic reactions.

PRECIPITATING AND PREDISPOSING FACTORS

In order to determine further the etiological factors, all of the 538 charts were reviewed. These consisted of the 296 admissions for the period December 7, 1940 to December 7, 1941, and the 242 for the period December 7, 1941 to December 7, 1942.

In evaluating these factors, only those causes actually found in the records have been tabulated. No attempt was made to deduce causes from the symptoms presented, e.g., no case was ascribed to latent homosexuality merely because he presented paranoid trends. Admittedly not all of our records were complete; nevertheless, they presented some 1146 etiologic factors in our 538 cases.

In recording these factors, they were grouped into predisposing and precipitating factors by racial groups. Under predisposing factors are ordinarily listed such items as heredity; life period (adolescence, climacteric, old age); sex; environment; occupation; previous attacks, etc. Under precipitating factors are listed physical causes such as infections, acute and chronic; exhaustion; endocrine imbalance; intoxication by alcohol, drugs, etc.; metabolic disorders; somatic disease such as tuberculosis, etc.; head trauma; circulatory disorders; and psychic factors such as acute mental fright and mental shocks, disappointments of one sort or another, domestic troubles, business and financial reverses, etc.

In addition an attempt was made to note sexual conflicts, cultural conflicts, and the results of incarceration, war, and the puerperium because these factors seem to be of interest to many persons.

This distinction between predisposing and precipitating factors was difficult to maintain, however, since a given factor such as alcohol might well operate as predisposing in one case and as precipitating or even symptomatic in another. These factors have therefore been added together for each year and are so tabulated. Naturally more than one factor has been operative in most cases. No attempt has been made to show how many have been present in individual cases.

Table 4 shows the various etiological factors found in the number of cases indicated in the two years.

TABLE 4. *Etiological Factors Found in 538 Admissions, 1940-42.*

	1940-41	1941-42
Family history	49	32
Life period		
Adolescence	30	11
Climacteric	28	15
Old age	33	35
Environment	48	24
Occupation	8	0
Previous attacks	44	32
Unstable personality	81	40
Infections		
Acute	4	0
Chronic	24	32
Endocrine (other than involution)	3	1
Intoxication	96	42
Puerperium	8	3
Somatic disease	21	7
Head trauma	15	12
New growth	1	2
Circulatory disorders	48	38
Acute mental shock and fright	25	11
Incarceration	17	10
War	3	19
Disappointments	23	16
Domestic troubles	24	27
Sexual conflicts	22	39
Financial reverses	18	12
Cultural conflicts	11	2
Total	684	462

COMMENTS ON TABLE 4

Familial history of mental disorder includes direct heredity from parents and grandparents, and also mental disease in brothers, sisters, uncles, aunts, and cousins. While the exact role of heredity is not well established, and many stable persons are known to have mentally ill ancestors or other relatives, it is unquestionably true that mental illness does occur more frequently in some families than in others. Manic-depressive and arteriosclerotic psychoses are believed by some to present hereditary tendencies. Syphilis may of course be congenital; and certain degenerative nervous diseases such as hereditary sclerosis, Huntington's chorea, etc., may be both familial and hereditary. These latter may or may not be, but usually are associated with mental illness. Once established, nothing can be done about heredity. It would seem wise therefore to discourage the propagation of stock with a history of a great deal of mental illness or hereditary disease of the nervous system, and to encourage those with good stock to indulge in less limitation of offspring. Pre-marital investigations of family stock and examinations of prospective bride and groom, including serologic tests, should be the rule rather than the exception, and should be required by law.

There is, however, another aspect of this incidence of mental disease in certain families which is not stressed as much as it should be, and that is the fact that unstable or psychotic relatives, especially parents, constitute not only heredity but also

environmental influences. Children are taught by and learn to imitate these parents in their reaction pattern or style of life, with resultant inadequate adjustment to life situations. These reaction patterns are established very early in life—some in childhood, most before puberty—at a time when children are largely under the direct influence of their parents. Obviously then, children brought up by unstable or psychotic parents are handicapped from the start, irrespective of the role of heredity. The remedy would seem to be to raise children under adequate, stable guidance in a setting free from such unstable and psychotic individuals.

Life period is mentioned because the periods of adolescence, the climacteric, and old age, are associated with considerable physical as well as mental stress.

During *adolescence*, the youth maturing physically and sexually, experiencing the changes of puberty, emancipating himself from the family and taking his place in society, obviously has many problems in adjustment and adaptation. This is the period par excellence for withdrawn, seclusive, schizophrenic reactions in response to difficult situations. Thoughtful preparation on the part of the parents, teachers, and the community is necessary for this transition with a minimum of emotional strain.

The *climacteric*, involution, or change of life is common to both men and women, though less dramatic in the former. Certain physical and mental changes, due in part to diminution or cessation of internal secretions are noted in both sexes— increase of weight, diminution of sexual vigor, general signs of ageing, transitory dizziness, headache, hot flushes, etc. Periods of depression, irritability, or even paranoid states are not uncommonly found at this age. While the physical symptoms are common and annoying, they are usually transitory, as the mental changes should be in most persons. Analysis of the life histories of patients with involuntional psychoses, plus their failure to respond to any great extent to estrogen or testosterone, shows that in the majority of such patients there existed an unstable, inadequate personality prior to the menopause. Many of the patients had looked forward with fear and terror to that day when youth would be gone, sexual attractiveness and desire would wane, and their mates might seek other companions. Many had known others who had developed mental disorder at the menopause and believed that such was the fate of all at that age.

If more women, and men as well, had been prepared to regard the involution as a normal physiological epoch wherein certain changes, annoying but transient, might be experienced, if they had been disabused of the idea that they would become insane, if they had been consciously prepared for

a new type of life after that epoch, there would undoubtedly be much less chance of mental disorder at this period of life.

Old age must come to all who survive the other hazards of life for enough years. Most persons develop the personality changes of senility if they live long enough. These may or may not amount to a psychosis. They are in the majority of instances accompanied by cerebral arteriosclerosis with actual nerve cell changes in the brain dependent on insufficient blood supply. This is by no means always the case, as one sees numerous brains from patients with senile psychoses with characteristic neurohistological findings of senile dementia which do not show any gross changes nor any cerebral arteriosclerosis. It should be remembered that peripheral arteriosclerosis and hypertension are not necessarily found with cerebral arteriosclerosis, the condition of the retinal vessels being the best guide to the condition of the cerebral vessels.

Unfortunately, at the present time, little can be done in the way of prevention of these changes of old age. Indeed, with the average life expectancy increasing, an increase in such patients is to be expected. It is well to remember, however, that with the advent of such brain changes the type of personality disorder, if any, is to a considerable extent dependent upon the pre-existing mental make-up of the individual concerned. It behooves all then to maintain as well-adjusted a life as possible so as to minimize the deleterious effects of arteriosclerosis and senility.

Certain *occupations* are undoubtedly prone to lead to drink and thus to mental disorders. In these admissions seamen and prostitutes were especially afflicted, the former perhaps because of lack of other recreation, the latter possibly because of their psychopathic makeup and disgust for their work.

Previous attacks of mental disorder are well known as predisposing to further attacks. About 10% of the admissions each year are readmissions. Over a period of years about 20% of former patients have been readmitted once or more. A certain number of these readmissions could undoubtedly have been prevented by a more adequate follow-up system.

Under *unstable personality* have been included the emotionally unstable, the withdrawn and seclusive, the inadequate, the psychoneurotic and the psychopathic personalities. They constitute fertile soil for the development of maladjustment and mental illness. They represent to a certain extent the endowment of the individual, but to a greater extent in most cases the result of faulty early environment and training. Most of these could have been prevented with proper early guidance.

Acute infectious such as rheumatic fever, influenza, etc., may precipitate mental illness in un-

stable personalities. The prevention of these is dependent upon preventing or mitigating these infections when possible.

Chronic infections in these admissions were nearly all syphilitic with involvement of the nervous system, chiefly parietic in type. The campaigns against syphilis now being waged by the United States Public Health Service, the Territorial Board of Health and other agencies should be helpful in reducing this number. It should be borne in mind, however, that while treatment during the infectious stage will prevent the spread of the disease, insufficient treatment without attention to spinal fluid findings will not appreciably diminish the number of these patients developing neurosyphilis; in fact, insufficient treatments may favor the advent of neurosyphilis, as may alcohol and head trauma. It is essential then that a full course of treatment be carried out for a minimum of two years, and that a complete physical, including neuropsychiatric and spinal fluid examination, be done before treatment is discontinued. In this way it is possible to have a fairly accurate idea in the first year or two of infection as to which patients will show signs of clinical neurosyphilis ten to twenty years later, and to institute adequate treatment therefor at once instead of waiting until irreparable damage has been done. It is vital that the medical profession and the general public be taught to regard spinal puncture as a routine procedure, which may be carried out in the physician's office if there are no signs of increased intracranial pressure and a small long-bevelled needle is used.

The recent Territorial law requiring every pregnant woman to have a serologic examination to detect the presence of syphilis should cut down the incidence of juvenile paresis, not to mention all the other mentally deficient and deformed children now being produced by syphilitic mothers.

Endocrine disorders, other than those of the climacteric, occurred rather infrequently amongst these admissions. Those noted were due to hyperthyroidism, a condition which is usually treated in the general hospital and rarely causes admissions to the Territorial Hospital.

Intoxication in this series refers in nearly every instance to the use of alcohol, although a few cases of drug addiction were noted. Alcohol was used very often as a solution for emotional conflicts over other difficulties. Its misuse, through excess and failure to eat, precipitated a number of psychoses as noted elsewhere in this paper. It seems probable that the alcohol per se is not responsible for these psychoses; but rather that a dietary deficiency especially in vitamin B₁ (thiamine) is more important for the production of alcoholic psychoses in unstable individuals, as well as for the production of peripheral neuritis, nerve-cell changes in the brain, etc. In some instances, al-

coholism was merely a symptom of an already established psychosis.

It seems likely that the ingestion of alcohol in moderation is not harmful to the majority of persons. It is certain that many are not able to handle it because of differences in the constitution of their nervous systems. A point in favor of this view is the well-known intolerance to alcohol in the so-called post-traumatic personality disorders following head injuries. It may be that those who drink in moderation, that is, those who never get drunk, are moderate in their other activities, including eating, working, playing, etc. It is of course well known that one may kill one's self just as surely by overdoing in any of these activities as by overdrinking. It may be then that the average, well-balanced, well-adjusted person is able to handle his liquor in moderation and not damage himself thereby. On the other hand, the poorly-balanced person is more likely to go to extremes, whether in the direction of liquor, work, religion, or what-not. It may indeed be a manifestation of a well-balanced stable personality to be able to drink in moderation. It has been said that in order to become alcoholic, one must be alcoholizable, and that many persons are alcoholic even before they have taken a drink.

From the psychiatric point of view, that person is an alcoholic who requires his liquor and feels restless and tense without it, regardless of whether he ever gets drunk or not. The tired business man who is in the habit of having a drink each evening to relax himself and drown his sorrows of the day is in danger, and is in fact an alcoholic, when he is distressed by having to omit his daily routine. He has arrived at a point where he should seek other means of solving his emotional difficulties and omit his alcohol.

A glance at our figures on alcohol indicates the magnitude of the problem and raises the question of what to do about it. Prohibition has been tried and has failed. It would seem that perhaps the answer is, not abstinence and prohibition, but temperance and moderation. This Territory has had a system of regulation and control since December 7, 1941, with undoubted beneficial results. Perhaps after the war a modification of this system might be continued here so that a moderate amount of good liquor at a reasonable price might be had by those who can handle it. For those who cannot handle it, who are habitual drunks, who conduct themselves unseemly when drunk, who beat their wives and children, who spend all of their money on liquor to the detriment of their families, etc., it would seem proper to prohibit all liquor. Liquor permits of such persons might be revoked and severe penalties provided for those who furnished them with liquor. If such a system were really to be enforced impartially, as it has been since the

blitz, much would have been done toward a solution of our liquor problem. Obviously such unstable personalities should receive whatever psychiatric and other services might be indicated.

The *puerperium* was listed as an etiological factor in those cases which developed at or immediately after parturition. In some instances there was a toxic-infectious factor, in others the physical stress and strain of pregnancy and delivery precipitated the psychosis in an unstable person. It must not be forgotten that psychic factors in illegitimate or unwanted pregnancies may be the underlying cause of psychosis during the puerperium. The prevention of these puerperal disorders depends largely upon sex education which would prepare people for marriage and parenthood; which would enable and encourage them to produce offspring when physically and emotionally ready for them; and which would insure proper pre-natal and lying-in care for the mother. The problem of illegitimate pregnancies has many ramifications, but essentially it goes back to the old story of proper training in childhood by the parents, teachers, and others.

The *somatic diseases* listed in the table were chiefly pulmonary tuberculosis with its toxic and psychic reactions because of long invalidism and gloomy outlook for the future. Psychotherapy, occupational therapy and social service may do much to prevent psychoses with these disorders.

Head trauma resulted chiefly from birth injuries; from automobile and motorcycle accidents; and from "punch-drunkenness" in boxers as a result of repeated head concussions. Less meddlesome obstetrics, fewer forceps, and more patience should reduce the incidence of birth injuries. Proper early treatment may do much to prevent late psychic sequelae of the other types of head injuries. Undoubtedly there will be an increase in the post-traumatic psychoses following the war because of head trauma sustained in the service.

New growth included intracranial neoplasms and neoplasms elsewhere. The former produce mental symptoms by acting directly on the brain; while the latter may cause them by metastases to the brain, by the general toxic effects on the person, or by the psychic effects of fear and worry over an incurable malignancy. In cases of mental derangement, careful neurological examinations are essential to detect possibly operable intracranial neoplasms. Encephalography and ventriculography are of the utmost importance in their diagnosis; these procedures are of little danger when performed by a competent surgeon. The electroencephalograph is also of great value in detecting and localizing some intracranial lesions. One of our patients died soon after admission of an unrecognized intracranial neoplasm. Most such tumors should in these days be diagnosed, and many

can be successfully removed surgically.

Circulatory disorders noted were chiefly cerebral arteriosclerosis and cardio-renal disease, both of which result in a diminution of blood supply to the brain tissue and consequent nerve-cell damage and mental symptoms. In cerebral arteriosclerosis, the symptoms are apparently due to an attempt by the undamaged portions of the brain to compensate for that which has been lost. As noted, little can be done about the arteriosclerosis, although heart disease may be prevented or modified in some instances by methods known to the general practitioner. Attention to the previous personality makeup may however mean the difference between a satisfactory adjustment and psychosis in later life when circulatory changes manifest themselves.

Acute mental fright and shock such as the sudden death of a close friend or relative, or fright from threats of bodily harm or kahuna are well known as precipitating factors in some cases of mental illness. It should be noted, however, that single factors rarely produce psychosis in stable individuals, and in such cases the pre-psychotic personality should be carefully investigated. The more stable the person is, the less likely is such a single factor to produce a major mental illness.

Incarceration as used herein refers to forcible restraint whether in prison, detention camp, or a hospital for the tuberculous. The deprivation of freedom, the frustration of hopes and desires, and the gloomy outlook ahead may precipitate mental illness in predisposed persons.

The *present war* as a factor in mental illness was listed only a relatively few times, contrary to the expectation of some. In these cases the chief worries seemed to center about relatives in the Philippines, China, or Japan. There seemed to be little definite evidence of any conflicting loyalties in these patients. It is interesting to note that the cases in 1940-41 were in the Filipino and Chinese while those in 1941-42 were found more often in Japanese with few amongst the Caucasian, Chinese, and Filipino.

Disappointments included physical disease or handicaps as well as other difficulties which frustrated specific hopes and ambitions, such as desire for education, careers, etc.

Domestic troubles covered troubles between husband and wife, i.e. incompatibilities of many varieties. It was frequently difficult to place the blame properly for these troubles. Apparently in 1941-42 there was an increase, due, among other things, to the fact that so many women were working and some of them neglecting their homes for other activities. In some instances the wives were making more than their husbands and frequently reminded them of the fact. In some cases, these wives with their newly-found independence were

able to assume the superior role for which they had previously longed, and in some cases actually left or divorced their husbands.

It is quite likely that the enforced blackout with long evenings at home together, without opportunity for relaxation and recreation, was a source of increased friction in many instances. Unfortunately, many of these patients had neither the capacity nor the training which made it possible for them to sublimate or substitute their urges under such circumstances.

Sexual conflicts were listed more frequently in 1941-42 than in the previous year. This was probably due at least in part to the abnormal conditions obtaining at the present time, with many husbands and wives separated, many defense workers away from their families and homes, etc. This situation undoubtedly produced an increased number of extra-marital affairs with resultant guilt feelings, as well as states of anxiety and tension from enforced continence in those accustomed to regular sexual gratification.

Autoerotic and homoerotic conflicts must not be overlooked in this connection. Numerous persons, both men and women, are known to indulge in abnormal sex practices, even though married to persons of the opposite sex; numerous others suffer from tendencies, not always consciously recognized, to so indulge. These autoerotic and homoerotic tendencies are frequently intensified when many persons of the same sex are separated from the other sex in construction camps, etc. In either instance, guilt feelings may be very strong or tension states may result producing much mental conflict.

Normally, each individual passes through an autoerotic stage, then a homoerotic stage, and finally attains adjustment on the heterosexual level. Pathologically, some persons fail to mature psychosexually and never reach the heterosexual level; others reach that level but are unable to adjust there because of inadequate preparation or some untoward experiences and regress to an earlier level—the homoerotic or autoerotic—at which they may attain the gratification they desire. In some instances, there is undoubtedly a constitutional or inherent tendency in the individual which prevents his attaining the normal adult sexual level. In most cases, however, the major difficulty lies in a lack of adequate sexual instruction by the parents, teachers, and the clergy. Sexual maladjustment may be merely one manifestation of a maladjusted personality, derived again from an inadequate preparation for facing life. Narcissism represents a withdrawal from the problems of reality, incest an inability to wean one's self away from the mother or mother-image, promiscuous sexual relations especially with supposed inferiors an attempt to overcome one's feelings of inadequacy in the

normal heterosexual states. Paraphilias, or so-called sexual perversions, are merely another aspect of the same inadequacies.

While the parents, teachers and clergy must be responsible for imparting adequate knowledge to the child early in life, much good can be done even on the eve of marriage by pre-marital interviews with physicians or other marriage counsellors.

Financial reverses were found less frequently in 1941-42, probably because of better employment and better pay. It is interesting to note that the number of "other" races so afflicted decreased while the Japanese, for reasons unknown, showed a slight increase.

Cultural conflicts were recorded chiefly in Japanese and Caucasians. The Japanese were those who had lived most of their lives in Japan and found it difficult to adjust to changed conditions in the Territory. The sharp decline after the war may have been in part due to a cessation of travel from Japan, and to the boom times and busy life being led by others without opportunity for brooding over their problems. The Caucasians were a very few who had come from the mainland and were having difficulty adjusting here. It is quite probable that they had been maladjusted on the mainland prior to coming here.

These findings are in keeping with those of the past, namely that immigrants into the Territory have not displayed any more tendency to psychosis than the resident population.

There were relatively few evidences in the younger Japanese of the much-discussed conflicts between the Japanese culture of their parents and the Occidental culture into which they are being assimilated.

SUMMARY

1. There is presented a survey of the etiologic factors listed in 296 admissions to the Territorial Hospital during the year before the war; and 242 admissions during the first year of the war.
2. These 538 admissions have been analyzed by first admissions, readmissions, months of admission, age, sex, race, type of mental disorder, and etiologic factors.
3. Admissions to the hospital decreased somewhat in 1941-42 as compared with 1940-41, chiefly because of fewer alcoholics, notably Caucasians and Hawaiians. There was also a decrease in the number of Filipinos admitted.
4. On the other hand a part of this decrease was offset by an increase in organic reactions, viz. paresis, arteriosclerosis, and senility, chiefly in the Japanese, part-Hawaiian and Chinese groups.
5. On the whole, the admissions by race were in proportion to the number of each race in the

general population, except for the Caucasians who had more than their share in 1940-41, chiefly because of alcoholism. This ratio was about as expected in 1941-42. The Japanese showed considerably fewer admissions in 1940-41 than expected, and somewhat more in 1941-42, the increase being due to the above increase in organics.

6. The male-female ratio showed a decrease among the Caucasians and Hawaiians because of a decrease in the number of alcoholics. The Filipinos also showed some decrease in the male-female ratio, which is still three times as great as it should be.

7. The male-female ratio increased somewhat in the Chinese, Japanese, and part-Hawaiian groups due chiefly to an increase in the organic reactions mentioned above. The "other" races showed an increased male-female ratio for unexplained reasons.

8. The 1146 predisposing and precipitating factors analyzed indicate an increase in 1941-42 in the organic reactions, viz. paresis, cerebral arteriosclerosis, and senility; and a decrease in 1941-42 in alcoholism and financial stress and strain.

9. The war did not occupy a position of any great importance in precipitating mental disorders, although a few Japanese and Filipinos gave worry over the war as a contributing factor.

10. The importance of the etiologic factors listed has been discussed more or less in detail.

11. Certain suggestions have been made which, it is hoped, may be helpful in preventing the operation of some of these factors, and consequently in reducing the amount of mental illness in this Territory.

CONCLUSIONS

1. In order to reduce the number of admissions to the Territorial Hospital, it will be necessary to concentrate on the etiologic factors discussed above.

2. This implies especially attention to hereditary factors, proper childhood training for the development of a stable personality and formation of an adequate reaction pattern or style of life; the elimi-

nation of as many as possible of the causes mentioned above; and adequate knowledge from the physical and mental point of view to combat successfully those which cannot be escaped.

3. It requires consideration of the capacities inherent in the child, and of the level on which he may be expected to adjust; training to cope with situations and not to evade them; cultivation of a proper emotional attitude, especially toward sex; development of objective interest in a wide variety of individual and group activities including recreation, art, music, literature as well as in some type of altruistic endeavor.

4. In short, the general public must be taught to cultivate an adequate well-balanced style of life from the physical, mental, social and economic angles. This is especially important in the world of today with its widespread unrest, hatred, cruelty, and their resultant repercussions on emotional life.

5. Such preventive work envisions a widespread, cooperative community endeavor with active participation of all agencies—medical, social, legal, educational, religious, etc. Adequate and competent psychiatric services must be available to all persons of all ages and to all the agencies mentioned above. Of particular importance are psychiatric services to the schools, child guidance clinics for children of pre-school age and older children as well, out-patient psychiatric service for patients of all age, and follow-up supervision and treatment of paroled or discharged mental patients.

6. Whatever the cost, an adequate mental hygiene program for the Territory will without question justify itself in ever-decreasing numbers of persons who cross the intangible border-line from so-called normalcy into mental disease and invalidism. Admittedly the goal is difficult but not impossible to achieve.

This is one of a series of papers being prepared for the physicians of the Territory by members of the Psychiatric Committee, Hawaii Territorial Medical Association. The opinions expressed are those of the author.

From the Department of Institutions (Mr. O. F. Goddard, Director), Territory of Hawaii, Honolulu, T.H.; and the Territorial Hospital (E. A. Stephens, M.D., Director).

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The Honolulu Emergency Poliomyelitis Hospital

SAMUEL M. WISHIK, M.D.*

Honolulu

On Thanksgiving Day, 1942, a girl was stricken by poliomyelitis in Honolulu; on Christmas Day, a second case occurred; in the next few months scattered cases followed, becoming more frequent until it became apparent by Easter that an epidemic threatened. It was recognized at that time that the inadequate hospital facilities of the city would not be able to meet the extra load which would be thrown upon them by such an epidemic. In addition, it seemed advisable to establish a single unit wherein the new Kenny treatment could be administered under proper supervision.

On April 19, 1943, the Medical Director of the Office of Civilian Defense opened the Emergency Poliomyelitis Hospital in temporary buildings which had previously been erected on the grounds of the Shriners' Hospital for Crippled Children as "blitz wards." Basic equipment was furnished by the Office of Civilian Defense. The U.S. Army supplied a staff of nurses and corpsmen. A civilian medical staff was drawn up consisting of pediatricians, orthopedists and specialists in other fields for consultative purposes. These doctors all donated their time and services without recompense. The author of this article was permitted by the Board of Health to devote part of his time from the Bureaus of Crippled Children and Maternal and Child Health to the position of Medical Director of the Emergency Poliomyelitis Hospital. This is an administrative position aiming at correlation of the activities of the personnel and facilitation of the orders of the medical staffs. The administrator of the Sacred Hearts Hospital divided her time between the two institutions in the difficult task of furnishing and supervising supplies, equipment and personnel. The Kenny treatment was administered to the patients under the supervision of the medical staff and through the help of two physiotherapists trained under Sister Kenny in Minneapolis. Special equipment needed for this treatment, of course, could not be purchased. One of the local machine shops created special equipment ingeniously designed by one of their mechanical engineers. These machines combined a heating motor, water bath and an electric wringer. They excel in efficiency those being used in most parts of the country.

The administrators of the hospital, at its inception, believed that the hospital should fulfill three functions: (1) to treat patients; (2) to train enough people so that all poliomyelitis patients in the various parts of the Territory would obtain equal adequate treatment, and (3) to evaluate sci-

entifically the treatment given at the hospital and thus to arrive at a decision regarding the role of the Kenny treatment in the handling of poliomyelitis.

TREATMENT OF PATIENTS

The hospital was opened to all patients regardless of financial status. The finances for the running of the hospital were contributed by the medical department of the Office of Civilian Defense, the Bureau of Crippled Children of the Board of Health, the public health committee of the Chamber of Commerce and a generous, spontaneous contribution by the public, all under the supervision of the Hawaii Chapter of the National Foundation for Infantile Paralysis. Cases were referred to the Board of Health for confirmation of diagnosis. Transfer from the outside islands was facilitated. No delay was permitted in hospitalization. After admission, the financial status of the family was studied and arrangements arrived at under the supervision of the director of the Hospital Social Service Association.

The nurses and corpsmen were divided into teams, each one responsible for administering the packs to a definite number of patients. The problems of change of shifts, hours and days off duty, the varying needs of individual patients, introduced many complexities into the organization of the staff. By trial and error, a formula was eventually arrived at. Nevertheless, the nature of the treatment necessitated an unusually large staff in proportion to the number of patients.

TRAINING OF PERSONNEL IN KENNY TREATMENT

A two-weeks' course in the first stage of the Kenny treatment, the hot packing, was established. All those working in the hospital were given this course and after a minimum of a month in the hospital were transferred back to their original units in the Army hospitals on the different islands. Gradually the Army nurses were replaced by O.C.D. nurses and these too were trained and transferred to O.C.D. hospitals in different parts of the Territory. In this way there soon existed throughout the Territory personnel able to administer the packing treatment immediately upon diagnosis and to continue this treatment until the patient could be transferred to Honolulu after the fourteen day isolation period. Fourteen patients from the outside islands received this service before transfer to Honolulu.

The second stage of the Kenny treatment, that

* Medical Director, Honolulu Emergency Poliomyelitis Hospital.

of muscle re-education, is much more complex and requires a background of anatomy and physiotherapy as well as many weeks of special observation, training and supervision. These facts, combined with the stress of work, precluded the two physiotherapists at the hospital training physiotherapists for work elsewhere unless the epidemic became so widespread that the patients could not all be treated at the Emergency Poliomyelitis Hospital. Fortunately, the epidemic subsided after a total of seventy-two cases so that no patient was turned away for lack of available trained Kenny therapists.

THE KENNY THEORY OF POLIOMYELITIS

Because the Kenny treatment is new and not completely accepted by the medical profession, it was imperative that careful records be kept of the patient's muscle status on admission, during the course of treatment and for an adequate follow-up period. A form was drawn up for this purpose.

The old orthodox theory regarding poliomyelitis seemed simple, logical and acceptable to the medical profession. Closer scrutiny should have indicated loopholes in it. According to the old belief, poliomyelitis virus damages the anterior horn cells in the spinal cord. Nerve fibers emerging from the cells cannot function and consequently muscles innervated by those nerve fibers become weakened or paralyzed. However, we have long recognized that there does not seem to be consistent correlation between the areas of the spinal cord affected by poliomyelitis and the muscles paralyzed, either as demonstrated on post-mortem examination or as conceivable on physiological or neuro-anatomical grounds.

To illustrate: each segment of the spinal cord sends out nerve fibers which are distributed to several muscles, not to any single muscle. In addition, each muscle receives nerve fibers from several segments of the spinal cord, not from any segment alone. Therefore, it is difficult to explain the isolated paralysis of a single muscle like the deltoid or the anterior tibial in the absence of involvement of the adjacent muscles receiving innervation from the same area of the spinal cord.

Sister Kenny believes that loss of muscle function in poliomyelitis is in most instances not the primary pathology but is secondary to a state of generalized muscle spasm. As a matter of fact the clinical diagnosis has always been made on the basis of a stiff neck, a splinted spine and a positive Kernig sign. Sister Kenny explains that all the muscles of the body are tight and painful, especially the posterior muscles, which results in the clinical picture described.

It has long been known that muscle tenderness and pain is a prominent early symptom of poliomyelitis. To those who have been working with

patients suffering from this disease, the presence of pain has been one of the most disturbing and frustrating features. Large doses of sedatives do not succeed in relieving the muscle cramps. If the Sister Kenny treatment accomplishes nothing else it is welcomed as a miracle by patients, nurses and doctors alike in that it brings relief from misery to these patients.

This relief is accomplished by the simple expedient of applying heat to the tight painful muscles in order to relax them. Sister Kenny has devised an ingenious method of bringing adequate heat to deep muscles without burning the skin surface. No other method, including diathermy, turpentine stupes, or chemical counter-irritation, can equal the relaxation obtained by the hot pack treatment. Heat is applied by means of wool steeped in boiling water and wrung dry. If not dry, the skin will burn, as would be expected by the use of boiling water. However, the hot, damp but not wet, wool pack does not burn the skin. Over the wool is placed a layer of impermeable material such as oiled silk or rubber, and outside of this a second but dry layer of wool. The innermost of the three layers brings heat to the area. The two outer layers retain the heat as long as possible. The pieces of wool are cut to fit the individual patient and are placed over the muscular portions of the body so as not to overlap joints where muscles are not present. This permits mobility and does not produce effusion within the joints.

In the application of the hot packs, Sister Kenny's technique is followed so as to obtain maximum coverage of the muscles affected, maximum duration of heat application and minimum irritation of tender, sensitive muscles by unwise, improper handling. This is the reason for the careful training program instituted in the hospital. Kenny packing is not just the application of wet compresses. It is a laborious, detailed, complex routine which should be followed faithfully to obtain muscle relaxation.

Sister Kenny has demonstrated that poliomyelitis is a disease which affects all the muscles in the body. Heretofore the medical profession has focused its attention on the isolated muscle most conspicuously weakened. Some of us who have treated poliomyelitis for years are amazed at how much we have overlooked that was recognized by Sister Kenny. A shoulder cupped anteriorly indicates pectoral spasm. A head turned to one side may indicate tightness of the sternomastoid and trapezius. A hand or foot uncomfortably everted may indicate a tightness of the external rotators. Merely looking at the patient in the position he assumes in order to obtain comfort from muscle spasm furnishes an eloquent fund of diagnostic information.

Extreme pain from muscle tightness is relieved

within a few hours or at most several days. Complete muscle relaxation usually requires several weeks of packing. In some instances spasm has persisted for months, despite treatment. We have learned at the Emergency Poliomyelitis Hospital that spasm of muscles is not only generalized but is chronic, in the sense that it tends to recur if treatment is discontinued too soon or if muscles are used too much. A patient with a left shoulder involvement will develop pain and tightness in the opposite good shoulder from holding a book or magazine with the right arm. A patient with involvement of one lower extremity will develop equal involvement of the opposite extremity if permitted to push himself around in bed with the good limb.

The presence of muscle spasm explains pain and tightness. How does Sister Kenny explain loss of function? After a careful study of muscle dynamics along physical and engineering principles, Sister Kenny has demonstrated that each muscle requires a definite position and length to suit its own special type and function. As an illustration, the biceps muscle of the arm in addition to flexing the forearm at the elbow has the function of supinating the hand. Try it yourself. Flex your left forearm, place your right hand over the belly of the left biceps and feel the biceps contract as you turn your hand in alternating pronation and supination. On the other hand, hold your left forearm and arm straight and notice that the biceps does not function as you put your hand through the same motions. The muscle can function in one position and not in another.

This illustration is one of many in which Sister Kenny demonstrates that pain, muscle tightness or splinting by plaster casts can throw a muscle out of its proper functioning position. If this is permitted to continue the muscle will apparently lose its function and seem to be paralyzed. Sister Kenny calls this "alienation" of a muscle. Until we learn the physiological explanation for this we have no better name. Whether it is a form of loss of function by disuse such as blindness of an eye which can result from strabismus or whether there is actually a detour of a nerve impulse is being investigated at the present time on the mainland. Stimulated to look in new directions by Sister Kenny's theory, research scholars have already uncovered new concepts in nerve function and anatomy. It is obvious that Sister Kenny's theory is a more hopeful one than the orthodox concepts. The muscle which is alienated rather than paralyzed has potentialities for recovery. Sister Kenny estimates that about five per cent of the patients do have what she calls "true paralysis" in the old sense. Except for these, the treatment bears promise of return of function.

The stage of muscle re-education constitutes the second stage of the Kenny treatment. Just as Sister Kenny has radically altered the medical con-

cepts of poliomyelitis so has she revolutionized the techniques of physiotherapy. It is impossible in an article of this length to describe in detail the methods of muscle re-education. Suffice it to say, the procedures are based first upon making use of the spinal reflexes, especially the proprioceptive ones, in causing muscle contraction. Following that, the patient himself is made aware of the presence of the muscle and its direction of pull. You and I could learn to wiggle our ears if we practiced long enough. Similarly, these patients learn conscious control of body movements muscle by muscle. The net result may not be a complete cure in the sense of all muscles returning to perfect strength, but the patient is made ready for life. He can walk without braces or crutches and he can use his arms and hands for ordinary purposes.

No discussion of poliomyelitis is complete without mention of the treatment of respiratory poliomyelitis. It is necessary to distinguish between the various ways in which poliomyelitis may cause disturbances in respiration. In the fatal type of poliomyelitis, often with conspicuous encephalitic involvement, damage to the vital centers including the respiratory and circulatory centers causes early death. No treatment is of any avail in this type.

Going lower in the nervous system, the bulbar type manifests itself by loss of function of the palate and pharyngeal muscle. The symptoms include nasal speech, regurgitation through the nose, difficulty in swallowing and collection of mucus in the throat. More often than not, these patients do not have extensive involvement of other parts of the body. The respiratory difficulty is merely due to the accumulation of mucus in the throat. The treatment therefore is relatively simple. Lower the head, have a suction machine at the bedside, turn the face to the side, allow the mucus to collect in the cheek, swab out the cheek with gauze and support life with parenteral fluids and transfusions. The prognosis is excellent. On the other hand the use of a mechanical respirator is contra-indicated. It is the best way to kill the patient immediately by causing aspiration of mucus into the larynx and trachea.

The third type of respiratory difficulty is impairment of thoracic breathing, and the fourth is immobilization of the diaphragm. These can occur in combination or separately. The old treatment for these types was the iron lung. Long before Sister Kenny's arrival in this country, it was generally recognized that the iron lung was not the life saving mechanism that many people thought. Most patients who really could not have lived without the iron lung died either in the lung or, within a few months afterwards. Death usually resulted from pulmonary infection or massive collapse of the lung. According to Sister Kenny's theory these patients lose the ability to raise the ribs with the intercostal muscles because of the chest being

gripped as if in a vise by spasm of the large chest muscles, chiefly the pectoral and the latissimi. The aim of treatment is to relax this spasm by means of hot packs and to attempt to educate the patient to breath properly rather than with the accessory muscles such as the sternomastoids. Packing the neck, chest and back should be tried first. If the patient does not respond he can then be placed in the respirator as a last heroic measure. He should then be weaned from the respirator as soon as possible. We do not yet know the place the respirator will take in the future treatment of poliomyelitis. It will probably find a minor role in conjunction with some form of Kenny treatment.

THE FUTURE OF THE POLIOMYELITIS HOSPITAL.

At the beginning of the current fiscal year the management of the hospital was turned over to a special board appointed by the Board of the Shriners' Hospital. Funds will continue to be furnished under the supervision of the Hawaii Chapter of the National Foundation for Infantile Paralysis.

To date the Emergency Poliomyelitis Hospital has treated sixty-nine patients, of whom twenty-five have been discharged. The epidemic subsided suddenly at the beginning of July. We do not expect any more cases this year. However, there are in the Territory many patients who have had poliomyelitis within the last few years. We have demonstrated to our satisfaction at the Emergency Poliomyelitis Hospital that the Kenny treatment can help to restore partial function even after a lapse of several years. In view of the generous contributions of the people of Hawaii to the Polio Fund, it seems only fitting that all patients in the Territory should be given a trial of the newest treatment to see how much or how little improvement can be obtained over and beyond the past orthodox treatment.

Towards this objective the Emergency Poliomy-

elitis Hospital plans to keep a constant census of about thirty-five patients during the next year or longer. Patients will be evaluated before admission to determine whether there is any reasonable possibility of improvement and will be admitted as quickly as other cases are discharged.

The criteria for discharge are extremely rigid. It has long been recognized that there are late after-effects which appear when the patient had previously been considered perfectly well. The most common after-effect is scoliosis. To prevent such sequelae the patient must pass a series of muscle tests before being considered ready to leave the hospital. The hospital maintains a follow-up clinic where the patients are observed and evaluated for their muscle status. When they are returned to the care of their family physician he is given a summary of their condition, prognosis and future treatment needed.

It is extremely difficult to evaluate a treatment for a condition like poliomyelitis which has such variable results with no treatment at all or with different types of treatment. It is admitted that epidemics vary in severity from year to year and many cases do clear up spontaneously. The statistical answer will be compiled only after a period of years when it becomes evident that there are fewer cripples left in the wake of poliomyelitis epidemics. It is understood that the Kenny treatment is not the last word. However, at the present writing, it is the latest word. It points a new way for future progress in the care and treatment of poliomyelitis. It relieves pain and by the removal of the former technique of immobilization in unnatural positions, it minimizes disability and eliminates deformity. We have yet to learn whether or not it prevents crippling. We hope that we may be able to corroborate with time the following equation: Kenny treatment will reduce crippling just as sulfatherapy has minimized mastoidectomies.

Board of Health.

Observations on Poliomyelitis in Honolulu and on the Mainland

S. F. STEWART, M.D.

Honolulu

In March of the present year it became apparent that a poliomyelitis epidemic was in the offing at an unusually early period in the year. Children's Hospital was quickly over-filled. Queen's Hospital was filled with other types of patients and had been for months. A contagious ward had been contracted for and was promised within 60 days, but the patients were coming in and could not await its completion. The result was that the O.C.D. buildings on the back of the Shriners' Hospital property were chosen for conversion to meet the emergency. The staff was appointed and the plans for care were developed by them; on the basis of existing reports, it was determined to use the Kenny treatment and to observe its effects.

At that time no doctor in the territory had any first-hand experience with the Kenny treatment; one physiotherapist had had two months' training at the Kenny Institute and another a month's work at the Children's Hospital in Los Angeles during the 1942 epidemic. Much reliance had to be placed on their help. To students of muscle physiology some very strange things soon began to be propounded as coming from the "fountain head" of knowledge, Sister Kenny. There was no questioning. "Sister Kenny says so!" The use of ointments in impetigo was taboo because Sister Kenny forbade massage. Contrary to all physical laws, a muscle could become incoordinate within itself and contracted at one end only. No examination of the patient was necessary; all one had to do was to look at the patient to know what muscles were in spasm. Babies lying normally were described as being in spasm. As chief-of-staff, statements like these raised serious doubts in my mind as to the whole subject of the treatment of poliomyelitis; either I was so far out of date as to need retiring, or the Kenny treatment was due for a keel hauling or was being grossly misrepresented. I, therefore, resolved if possible to go to the mainland and learn the status of things. To this end I was commissioned by the O.C.D., and obtained the highest civilian priorities for the purpose.

Early in June I took one of the victims of the epidemic to San Francisco on the Clipper. He experienced no pain or difficulty throughout the journey at any time. This was contrary to another's experience where the leg pains became almost unbearable during the trip.

I attended the American Orthopedic Association meeting where the subject was being discussed. I went to Minneapolis and contacted Dr. Wallace Cole, Professor of Orthopedic Surgery at the Uni-

versity of Minnesota, who was responsible for Sister Kenny's securing a hearing in this country. I spent two days at the Kenny Institute, largely with Sister Kenny's nephew, Mr. Bell, who was the only one on the Kenny staff there during my visit. I spent four days at the Mayo Clinic and about three weeks in Los Angeles, where another epidemic was taking place. In each instance I interviewed people and observed the work being done. This report is based on what I heard and saw.

Moldaver, a neurophysiologist, a Belgian refugee of international repute, working at the New York Neurological Institute, presents in the J.A.M.A. for September 11, 1943, a concise comparison of the accepted and the Kenny concepts of poliomyelitis:

"Infantile paralysis is not merely an acute disease of the anterior horn area of the gray matter of the spinal cord. Lesions are also found in the posterior horns, in the sympathetic column and in the dorsal root ganglions. The white matter and the vessels of the pia are also involved. In addition, any part of the central nervous system, cerebral cortex, cerebellum, pons and medulla may be affected. However, the affinity of the virus for the gray matter of the cord is striking. After the period of acute inflammation, resolution takes place. It is usually complete in the white matter and sometimes even in the gray matter. In many cases anterior horn cells are destroyed or damaged by direct action of the virus. Distribution and intensity of the lesions vary widely.

"These lesions explain the symptomatology of infantile paralysis very well. After a stage of general malaise, as seen in any infectious disease, there are signs of meningeal irritation, pain, followed more or less quickly by paresis or paralysis. The irritation of the meninges, dorsal root ganglions, posterior roots and posterior horns explains the pain, which is one of the definite symptoms of the disease. The lesions of the anterior horn cells explain the motor deficiency, ranging from pronounced paralysis to slight weakness.

"The paralysis is a flaccid one. The muscles become atrophic and toneless, the tendon reflexes being absent as well as some cutaneous reflexes. Tenderness on pressure of the muscles and pain caused by active and passive motion are also common findings. Hyperesthesia is found in most of the cases. In the weak or paralyzed muscles the existence of neuromuscular degeneration can easily be demonstrated and is the consequence of the lower motor neuron lesion.

"Recently a new concept of infantile paralysis has been described by Kenny and has been approved by some physicians. This new concept is fundamentally different from the one accepted for more than a century. The phenomena described in this concept are (1) muscle 'spasm,' (2) 'mental alienation' and (3) 'incoordination.' Only recently the existence of some true paralysis has been accepted by the proponents of this concept. Muscle 'spasm' is regarded as the most damaging symptom in poliomyelitis and is said to lead to degeneration if not treated. The muscles opposed to those in 'spasm'

become 'alienated,' divorced or erased from the patient's mind. The muscles which are in 'spasm' are the damaged ones. 'Spasm' is described as being generally present in the following groups: neck, back, hamstrings, calf and pectoralis muscles. The 'alienated' muscles are non-functioning, not because they are paralyzed by the lesions of the anterior horn cells, but rather because for some unknown reason they are unable to receive impulses. The dissociation of the muscle from the brain is regarded as due to some physiologic block. 'Alienated' muscles may become permanently nonfunctioning if not treated. In summary, according to this concept, infantile paralysis is a 'spastic' not a flaccid paralysis; the muscles affected by this disease are those in 'spasm.' The antagonist muscles are 'mentally alienated,' and some muscles show incoordination. The danger of paralysis lies mainly in allowing 'spasms' to continue."

Kabat and Knapp, in a report to the staffs of the University of Minnesota Hospitals, published June 4, 1943, attempted to explain the spasm by an hypothesis based on a review by Minckler of the available pathological material. He described "marked degeneration of the synaptic endings on the surface of the anterior horn cells—due to injury to the internuncial neurons." Kabat and Grenell found such lesions predominated in 38% of the 68 cases subject to pathological review at the Minnesota University Hospitals. The same writers found that experimentally a likeness of the Kenny described spasm of poliomyelitis could be observed following arrest of circulation of the spinal cord for forty-five minutes, and the pathology was again an internuncial lesion. It was my understanding from other sources that this theory as propounded by them at a neurological meeting was promptly over-ridden by the neurologists. This, of course, means nothing in establishing or refuting the observations or the superimposed theory.

Moldaver, working on patients at both the University of Minnesota and the Neurological Institute in New York, determined the irritability (chronaxie) of the muscles in poliomyelitic patients by examining muscles showing so-called "alienation" and "spasm" in various degrees. He reached the following conclusion:

"In view of this new concept (Kenny), investigations were conducted. Forty-nine patients with infantile paralysis were tested with chronaxia measurements and in some cases action potentials were recorded. The following conclusions were drawn:

"1. 'Muscle spasm' is not 'the most damaging symptom' and does not lead to neuromuscular degeneration. 'Spasm' is not an entity but a complex phenomenon. It is the result of a combination of the normal stretch reflex, meningeal irritation of the posterior roots, increase of the normal tonus in healthy and strong muscles or muscular fibers opposed to weak or paralyzed muscles, lesions of dorsal root ganglions and posterior horns. Pain is a common symptom in acute poliomyelitis. This is a referred pain which is increased by stretching of the muscles.

"2. In 'alienated muscles' there is neither a functional paralysis nor a 'physiologic block.' That these muscles have partially or completely lost their power to contract is due to the fact that the anterior horn cells are dam-

aged or destroyed. In the paralytic or paretic muscles considered to be 'alienated,' there is always some degree of neuromuscular degeneration.

"3. 'Incoordination' does not consist in a misdirection of nerve impulses. It is caused, if at all, by the inability of partially or totally denervated muscles to respond to otherwise normal nerve impulses."

Watkins, Brazier and Schwab at the Massachusetts General Hospital making extensive studies of the electrical discharge of muscles in poliomyelitis and other paralyzing diseases (J.A.M.A. Sept. 25, 1943) confirm Moldaver's work, add to it and conclude:

"Of the three concepts of Kenny, the only one upheld by our objective measurements is that of 'in coordination' although the term is misleading. Disordered reciprocal innervation seems to be a more descriptive term for this type of dysfunction."

Kabat and Knapp at Minnesota, and Schwartz at the University of Rochester, approached the problem of the treatment of muscle spasm independently through an attempt to eliminate muscle spasm by drug action. The former writers approached it through three channels: (1) The removal of consciousness and loss of pain by sodium pentothal intravenously; (2) removal of sensory and motor influences by spinal anesthesia; (3) removal of motor activity alone by use of a curare-like drug, beta-erythroidine hydrochloride. They found that the latter two approaches gave more satisfactory effects than the first. Schwartz, apparently using a similar drug, told me that the results he obtained were most gratifying.

Sister Kenny's approach to the problem is through the use of hot packs. The use of hot packs by the Kenny technique to relieve spasm is a frightfully messy and expensive technique. This was obvious from the experience in Honolulu, although the local administration had no idea of what the cost was when I inquired and seemed to resent the fact that the chief of staff was interested. The per diem charge of \$5.00 at the Kenny Institute is no criterion, because the cost of ordinary hospital care in this country is far beyond that amount—how they got that way I do not know. Ransohoff, from his experience with the epidemics in Monmouth and Ocean Counties, New Jersey, estimated the cost at five times that of ordinary care. The charge for Kenny treatment at the Children's Hospital in Los Angeles is \$5.00 a day with ward or room costs added, making it \$10.00 a day on the wards and \$13.00 a day in private rooms. To this the doctor's fee and any special nursing care must be added. Any method of care, therefore, that will reduce the cost as well as avoid the mess and the spread of skin diseases under the hot moist packs would be most welcome.

What is the impression of the results obtained? The Kenny Institute keeps no records, hence any statements made by Sister Kenny or any of her

staff are simply their impressions. Ransohoff stated at the American Orthopedic Association, "Sister Kenny has told me that there has been no case of acute poliomyelitis that she has treated, where it has been necessary to put the patient in a crippled children's home; or where the patient has not been able to return to school or to his previous occupation. *That classification is not good enough!* There have been few cases that any one here has treated, who would not be considered cures under this definition."

The strength of muscles can be evaluated by the familiar technic, popularized by Lovett, to which Sister Kenny violently objects. Spasm and incoordination, on the other hand, are much more difficult to evaluate. The Children's Hospital in Los Angeles is trying to evaluate them and keeps written records. Ransohoff concluded: "It can be asserted that no patient has suffered ill effects because of treatment by the Kenny method." Alan D. Smith, Chief Surgeon of the New York Orthopedic Hospital, observed spasm lasting more than a year under Kenny treatment and I observed it of eight months' duration at the Kenny Institute in Minneapolis. He, as Ransohoff, felt that braces could not be abandoned entirely. The feeling in Los Angeles is that the Kenny treatment is a contribution but it is not the miracle de Kruif and others have proclaimed it. Ransohoff put it very neatly:

"Sister Kenny has made a real contribution. She, herself, like all originators of a method, reports results which we have not yet been able to duplicate. She has been endowed with a great gift in the healing art. There is still a question as to whether or not she can impart this gift to her disciples. Certainly through her, a large number of people are being trained in an excellent method of muscle reeducation. For this, if for nothing else, all who have to do with the therapy of poliomyelitis must be most grateful."

One difficulty in appraising results is that epidemics vary markedly. The present Honolulu epidemic was very mild, and is no criterion by which to judge the effects of the treatment. The next one may have a death rate of 25% or more and leave a mass of severely disabled individuals regardless of what treatment is given. If, after several epidemics treated by the Kenny method, we have fewer cripples, fewer brace wearers and fewer stabilized feet, fused spines and transplanted muscles than we had from a corresponding number of patients of pre-Kenny days, then, and then only, can the Kenny treatment be proclaimed as being better than what we had before.

The Editor's note in the *Progress of Orthopedic Surgery* for 1941 recently published by the American Academy of Orthopedic Surgery puts it this way:

"There is certainly nothing in recent years that has caused more comment, favorable and unfavorable, on any one orthopedic subject than the principles as laid down for the early care of the patient with poliomyelitis by Elizabeth Kenny. Most observers who have watched

her work and studied her methods are of the opinion that the results obtained are better than those obtained with the present orthodox method of care. No sound scientific reason which has been generally accepted has been given to explain these results. Many odd statements have been made by scientific persons without adequate basis or explanation. There is no doubt that a great deal of good will come from the discussions of this treatment and that our present orthodox methods are going to be altered to a considerable extent in the next few years. The time, the expense and the special training necessary for the work employing the Kenny method may make the universal application of this treatment an impossibility for some time to come."

I am of the opinion that it is wrong to take the attitude of a devotee and accept whatever Sister Kenny says without thought or reason. Her recent book is filled with half-truths and needs a thorough review by muscle physiologists. When I mentioned to Mr. Bell of the Kenny Institute the local attitude towards the application of ointments for the treatment of skin disease, he replied, "You have to use common sense." The best of us know little enough to be dogmatic and usually the less we know the greater the dogmatism and the fervor. I suggest, therefore, that the medical profession keep an open mind in regard to the Kenny method and all other methods of treatment of poliomyelitis, and finally endorse only that which has time and again proved superior. Certainly the profession should not allow itself to be stampeded into any form of treatment by an uninformed, sentimental laity, who are in no position to approve or judge the validity of publicized claims. For example, the local press described at great length the wonderful cure of the first victim discharged from the local hospital. The facts are that this was a very mild case; the child had received only one treatment when the machinery broke down; the next day the spasm was gone and the child finished out her quarantine in the hospital. She was the type that would have recovered if she never had seen a doctor.

Ransohoff summarized it beautifully:

"How much of the Kenny concept will remain intact is not known. Many of her ideas of kinesiology are still difficult to swallow. . . . In my conclusions, therefore, I must 'sit on a fence'. . . . However, at the moment I believe that no one amongst us is as yet fully entitled to step off the said fence. We have neither enough knowledge nor experience."

The Billig nerve crushing operation I found was looked upon in askance by the orthopedic surgeons as being unproved, and the ethics of the Polio Foundation or its representatives in Los Angeles in this connection were roundly condemned. A polio patient of Dr. "A" would suddenly disappear, having been hunted up by them and referred to Dr. "C" without a word or a nod to the patient's physician.

Poliomyelitis is infinitely more complicated than anyone had dreamed. The victory lies not in rebuilding a shattered mechanism, but in radarizing the attack, and stopping it beyond the threshold.

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EDITORIALS

THE SIGNIFICANCE OF THE PRESENT DENGUE FEVER EPIDEMIC*

Evaluating the importance of controlling the present dengue fever epidemic in Honolulu is a question which many members of the medical profession have undoubtedly posed in their own minds.

Is it necessary to utilize hundreds of precious man-hours of wartime labor in a campaign to curb the spread of a disease whose death rate has at least a couple of zeros after the decimal point? Does the use of thousands of dollars for salaries and materials for dengue mosquito control constitute a legitimate expenditure of public funds urgently needed for guns, tanks and planes? Can it be possible that an infection, the manifestations of which are sometimes so mild that a physician is not even called, can warrant such special attention by the Army, Navy and official health agencies?

Is it true, as has been stated, that the real importance of the current Honolulu epidemic of dengue fever lies solely in the fact that it demonstrates the ease with which yellow fever could spread through the community?

The answers to these and similar pertinent questions may be found partly in a study of previous dengue epidemics in temperate zones and partly in an analysis of the current situation in Hawaii as it relates to the war effort.

Dengue, in temperate climates where all adult mosquitoes are killed each fall by frost, and in other non-endemic areas, is characterized by sudden outbreaks of explosive violence. Three or four weeks after the appearance of the initial cases, there are usually several hundred cases per week and by the end of seven or eight weeks, the cases

will be numbered in the thousands if the outbreak is occurring in a populated area. If the earliest cases appear before mid-summer the disease will run rampant through the population, affecting from 50 to 70 per cent of the people within a three month period and then gradually diminish because of lack of susceptible persons. If the epidemic gets its start in late August, a timely frost may terminate it before mass immunity assumes the position of a controlling factor.

Contrast this epidemiological picture with a truly tropical area where dengue fever simmers throughout every year, attacking all newcomers shortly after arrival and maintaining itself in individuals with worn-out immunity, in children being infected for the first time, or possibly, in a non-human host. It is from such areas that dengue is introduced into epidemic-ripe territory by a case in the infectious stage or, less likely, by transportation of infected mosquitoes.

On the mainland there have been three dengue epidemics of note during the past quarter century—in 1922, 1935 and 1941.

The 1922 epidemic started in Galveston, Texas, in the second week of June; it was first reported in Houston in the closing days of July, and was on the rampage by mid-August. Later it spread along the railway lines to cities in central and northern Texas and to neighboring states. Many inland cities reported 20% to 50% of their population affected, and the number of cases for the entire state was probably near a million. Large outbreaks were reported from many of the smaller cities in east central Texas; Austin had an estimated incidence of 20%; Denton, 30%; Terrill, 90%; and Cleveland, almost 100%; Dallas probably had not less than 20,000 cases.

After this severe outbreak, dengue lay quiet for over a decade, and then broke loose on the eastern

* This article was prepared with the assistance of Wesley E. Gilbertson, Passed Assistant Sanitary Engineer (R), U.S. Public Health Service, i/c Dengue Mosquito Control.

Gulf Coast in 1934, principally in Florida and Georgia. It hit Miami hardest, where there were estimated to have been 6,000 cases in August of that year. After that the disease subsided again, but in 1941 there were estimated to have been 2,000 cases in the Rio Grande Valley in Texas. More by good luck than good management, this outbreak did not spread to other parts of Texas.

In Hawaii dengue prostrated the islanders in the years 1903 and 1912. As an accurate system of compiling communicable disease records was not in effect at the Board of Health at that time, official records do not indicate the true extent of these outbreaks; however, old timers who recall the 1903 epidemic say: "Everyone had it," and a conservative estimate states that 60% of the population was affected.

Perhaps the most interesting thing about dengue fever from the physician's viewpoint is the difficulty of making a definite diagnosis in the absence of a number of other cases. Very often one or more of the usual symptoms are absent, making only an exclusion diagnosis possible. One of the older members of the medical profession, experienced with dengue, once said that he couldn't diagnose it unless he had a dozen or two dozen cases.

The chief danger of dengue is its ability utterly to paralyze a community for several weeks if allowed to run rampant through the population. The economic implications of such a situation are tremendous. Dr. A. C. Chandler of Rice Institute, who has been interested in dengue in Texas for over twenty-five years, recently computed the cost of the Texas epidemic as follows:

"On a very conservative estimate, the average cost per case for medical attention and drugs is \$3.00; the average loss of time, five days, followed by five days of inefficiency, amounting to at least seven and one-half days of lost time. In many cases convalescence lasts for several weeks. The 1922 epidemic, estimating only 500,000 cases, cost Texas one and a half million dollars and 10,000 years of time! The loss of time was bad enough then; it would be a catastrophe now."

Imagine the cost to Honolulu of a 1943 outbreak affecting 60% of the present population!

Of far greater importance than the monetary loss is the lost time—time which could never be regained to advance the war effort. Consider for a moment the sabotage to Hawaii's war program at this time which could be wrought by these "fifth columnists," the day mosquitoes; virtual stoppage of the urban transportation system; crippling of the communication system; insufficient man-power to operate the public water, electric, and gas utilities; medical facilities completely jammed; stores, restaurants, and all other business unable to cope

with the most urgent needs. These things happened in Miami in 1935. In a war center, the hazard of infecting the men of the armed forces is a potential threat to military strength. It is essential that the health of the fighting men be protected at any cost.

So far, the Honolulu dengue epidemic has been a mild one, yet with oncoming increased rainfall there is the ominous menace of the many scattered cases suddenly becoming multiple foci for a city-wide explosion of disastrous consequences. Three relatively small areas—Waikiki, Kakaako, and the Buckle-Lane-River-Street zone—have graphically illustrated how quickly dengue can break loose in the present epidemic.

A complete control organization of over 100 men is battling to curb day mosquito breeding all over the City of Honolulu. The attack is technically sound—based on the elimination or larvicidal treatment of every type of water container which can be located—by means of house-to-house inspection.

It is not necessary to eradicate completely all day mosquitoes to stop dengue. When the mosquito population is reduced to the point where it becomes mathematically and actually unlikely that a female mosquito will bite an infectious patient, the disease will diminish. Dr. Chandler believes that this will occur when somewhat less than 5% of the premises have day mosquitoes breeding thereon. The relatively short—100 yard—flight range of these mosquitoes and the dislike for being carried by the wind aids the control program by delimiting the control area to the city proper.

The day mosquitoes—*Aedes aegypti* and *Aedes albopictus*—which transmit dengue, are not ground pool or swamp breeders, but lay their eggs only in water standing in bottles, barrels, tin cans, buckets, pans, tires, ivy bowls, ant cups, roof gutters, snugs, tree holes, pineapple, lily and ape plants, and other containers. Whenever a focus of infection develops, immediate wholesale spraying with insecticides is instituted to kill adult mosquitoes, which can live and transmit dengue for a month or more.

In order to follow the course of the epidemic satisfactorily, it is essential that every suspected and known case of dengue be reported promptly. Bed nets are important preventive equipment when the patient is in the infectious stage. Patients should not be allowed to come out from under the bed net in order to seek medical care or just "because it's too hot!" Insecticide spraying of the house three times daily will help to kill infected adult mosquitoes hiding about the home and will protect the remainder of the family and nearby neighbors.

Much of the success of the dengue control measures depends on the attitude of the medical profession. Residents of any community look to the doctors of medicine for advice and guidance in all health matters. The continuance of a strong war effort in Hawaii necessitates active participation by everyone concerned to stamp out dengue before the epidemic gets out of control.

CASE REPORTS SOLICITED

One important function of any local medical journal is to serve as a means of communicating information about interesting and instructive cases to the medical community. The HAWAII MEDICAL JOURNAL has not been able to do as much of this as we should like, simply because such material has not been forthcoming.

We extend herewith a cordial invitation to civilian and military physicians alike, to submit case reports. It is our intention to combine the columns on Recent Advances in Surgery and Progress in Internal Medicine into a single feature entitled Clinical Notes, as soon as a sufficient amount of such material becomes available.

One stumbling block to such contributions has always been that the potential contributors feel themselves unable to write well. Please do not be deterred by this consideration: the editorial staff will undertake to render your contributions pre-

sentable without unduly altering their form, if you so desire.

Another obstruction in some cases has been the feeling among military physicians that it is too much trouble to secure official approval for publication. A recent change of policy in the Army has eliminated this barrier. Papers intended for publication need only be submitted to the doctor's commanding officer, who will forward them to the proper authority for approval locally. The same procedure is followed by the Navy here.

A few desperate appeals to prospective authors are in order at this point. *Please* submit an original and a *carbon copy*, typed *double space* on standard typewriter paper. And if you include references to the literature, please be sure to include *all* the information on them as given in the Index Medicus.

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PROGRESS IN INTERNAL MEDICINE

EPIDEMIOLOGY OF POLIOMYELITIS

Poliomyelitis in Hawaii

Dr. J. R. Enright¹ in his annual report for the fiscal year ending July 1, 1940, stated that poliomyelitis "occurred in epidemic form" during that year. A total of 101 cases and 10 deaths were registered in comparison with 10 cases and no deaths for the fiscal year of 1939. The cases were confined mainly to Oahu and Hawaii, and all but one of the deaths occurred in Honolulu.

Dr. Richard K. C. Lee,² in an analysis of poliomyelitis cases, presented before the fifty-first meeting of the Territorial Medical Society, stated that 400 cases had been reported in the Territory of Hawaii since 1922, when the disease was first made reportable. The disease had occurred on all of the islands except Lanai and Niihau. In contrast to the well marked seasonal periodicity of temperate zones, poliomyelitis in Hawaii shows much more even distribution throughout the year. Dr. Lee noted no unusual distribution by sex or age, but there was a higher incidence among Caucasian and Hawaiian groups than among Filipinos, Chinese and Japanese.

Epidemic of 1943

During the first half of the current year, Hawaii again had a marked rise in incidence of poliomyelitis cases. Seventy-two new cases were reported to the Board of Health between February 1 and July 31, 1943; forty-two were from the City of Honolulu, 1 "off shipping", 13 from rural Oahu, 8 from Kauai, 7 from Hawaii and 1 from Maui. The epidemic apparently reached its height in Honolulu in April when 18 cases were reported. It appeared to have died out in July, only 1 new case being reported.

Local interest in the widely publicized, revolutionary and apparently effective Kenny method of treatment has somewhat overshadowed interest in the epidemiology of the disease. In this relatively close-knit community, opportunities for epidemiologic studies are unique. This challenge is recognized by the health authorities, and it is hoped that sufficient funds will be made available to allow completion of the study.

A preliminary review of spot maps and other epidemiologic data, made possible through the courtesy of Doctors Wishik, Enright and Wilbar, reveals the following interesting facts:

The distribution of cases was widespread in the City of Honolulu. There was no heavy grouping of cases in any particular district. There was no regular time interval between development of cases in one section and in another. Concentration of cases was not greater in the more densely populated parts of the city. Indeed, there appeared to be slightly greater incidence in outlying sections, such as the Kaimuki district, where crowding and poor economic status could not be factors. In rural districts distribution of cases was still more scattered.

Careful inquiry into family, school and occupational history showed extremely rare contact between cases. The only instance of family contact was between two cousins. No unusual incidence was noted in any school. No occupational contact was proven in adult cases. No unusual incidence of illness in families of the cases or in school or neighborhood contacts was recorded by visiting nurses investigating this carefully. No unusual environmental factors were recorded in the investigation.

Epidemiologic Theories

These data do not support, in the opinion of the writer, the thesis that poliomyelitis is a contact disease. This is not an unusual finding. Yet a great majority of writers adhere to the theory that poliomyelitis is spread by direct contact between cases or carriers and susceptible individuals. The relatively sparse distribution of cases and infrequent history of actual contact is explained by the large percentage of immune persons in most communities.

Recent elaboration of this theory suggests that the disease occurs frequently in mild, unrecognized, and perhaps unrecognizable forms and only rarely is diagnosed when nervous system complications arise (about as frequently as complications occur in cases of scarlet fever or measles). An X—personal, perhaps endocrine—factor has been hypothesized as determining the development of the nervous system involvement.

It has been hypothesized previously, on the basis of animal experiments, that the virus was admitted through the nasal mucous membrane and spread by the olfactory tract to the central nervous system. It seemed probable that it was disseminated by secretions of the nose and throat.

Recent work has shown that the virus is recovered more frequently and for a longer period from

the stools than from the nasal secretions of cases and carriers. Furthermore, pathologic lesions of the olfactory bulb have been found to be relatively insignificant in man as compared with animals experimentally infected by the intra-nasal route.

Whereas formerly it was difficult to infect monkeys and chimpanzees by other routes than this or by direct intracerebral inoculation, Sabin and Ward,³ working with certain species of monkeys, have been able to infect them by feeding the virus, and Trask and Paul⁴ have accomplished infection by direct skin inoculation.

Is Poliomyelitis Water-Borne?

The repeated demonstration of the virus in sewage from epidemic areas suggests the possibility of water-borne dissemination of the disease. K. F. Maxcy⁵ refutes this hypothesis on the grounds that the epidemiologic pattern differs significantly from that for other diseases such as typhoid, dysentery and cholera, which are known to be water-borne. There is no correlation between incidence of poliomyelitis and poor sanitary environment, no evidence that cases use polluted water, and no improvement in incidence following purification of water supply. The explosive nature of outbreaks of water-borne diseases is lacking in poliomyelitis epidemics.

That the disease may be transmitted occasionally by ingestion of heavily contaminated water—for instance, by swimming in polluted streams—seems possible.

Animal Hosts or Insect Vectors?

Formerly considerable attention was given to the possible transmission of the disease by insect vectors. Between 1911 and 1917, several successful experiments were reported of transfer of the disease from infected to noninfected monkeys by the stable fly. Later attempts to repeat these experiments were unsuccessful, thereby discouraging further tenance of the insect-borne theory, and giving credence to the contact theory previously elaborated.

Recent work with certain of the encephalitides has proven that some of the neurotropic viruses have animal reservoirs and insect vectors. Eastern equine encephalitis, a disease of horses occasionally affecting man, has also been found in pigeons, pheasants, ducks, wild geese and the blackbird. The Western type of equine encephalitis has been shown to be transmitted by the mosquito and by wood ticks. The St. Louis type of encephalitis, like Japanese B. encephalitis, is now believed to be transmitted by a mosquito. Hammon *et al.*⁶ recently reported experiments which suggest that fowl may be the natural reservoir.

Attempts to infect animals other than chimpanzees and monkeys with the poliomyelitis virus were

unsuccessful until 1939, when Armstrong⁷ obtained a strain of the virus (the Lansing strain) which he was able to adapt to white mice, after passage through the cotton rat. Other strains of human poliomyelitis have not been successfully transferred to these or to other animals, but that infection of mice may be transmitted occasionally to humans is suggested by the recent report of Jungeblut and Dalldorf.⁸ These investigators were able to isolate a virus from a recently dead mouse taken from the basement of the home of one of five cases occurring in White Plains, New York. This virus caused typical paralysis of albino mice, cotton rats and hamsters. Another virus isolated from the brain stem of a fatal case acted similarly. Convalescent serum from two of the patients partially neutralized the virus. The epidemiologic and experimental evidence of this report suggests an extrahuman source of infection in certain cases of poliomyelitis.

Recent experimental evidence is also reported confirming the old idea that flies may carry the virus. Sabin,⁹ in 1942, using the Java monkey, *M. cynomolgus*, was able to demonstrate the presence of the poliomyelitis virus in 8 out of 15 batches of flies trapped in Atlanta and Cleveland during outbreaks of the disease.

Trask and Paul¹⁰ were successful in demonstrating the virus in 4 out of 18 samples of flies from endemic areas. In all instances of successful isolation of the virus, blow flies and greenbottle flies have been present. Whether the virus is carried merely mechanically by flies on the surface of the body or within the gastrointestinal tract, or whether the virus multiplies within the insect, is not proven by this work. Further investigation along these lines will be awaited with considerable interest.

Summary and Conclusions

Certain preliminary epidemiologic data concerning a recent epidemic of poliomyelitis in Hawaii are reviewed. It is apparent that the epidemiologic pattern does not follow that of most contact diseases.

Newer epidemiologic and experimental evidence suggests that there are other sources of the poliomyelitis virus in nature than those which come directly from man.

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—S. E. DOOLITTLE, M.D.

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Sokolow & Chamberlain (*Annals of Internal Medicine*, February, 1943) state:

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R. M. Tandowsky (*American Heart Journal*, October, 1942) states:

"The average time required for the development of maximal RS-T segment changes in the controls of this study after the administration of 1.6 mg. of lanatoside C

intravenously was 27.5 minutes as compared to six hours and fifteen minutes after giving 16 grains of digitalis purpurea by mouth.

"In the presence of congestive failure, the intravenous administration of lanatoside C produced the maximal alteration of the RS-T segment within two to three hours which was eleven to twelve hours sooner than when digitalis purpurea was given orally.

"Our observations indicate that lanatoside C will prove to be a valuable drug in the treatment of congestive failure, especially when quick action is desired or when gastrointestinal symptoms are troublesome."

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RECENT ADVANCES IN SURGERY

TRANSTHORACIC SUBTOTAL GASTRECTOMY FOR BENIGN ULCER OF THE STOMACH

The particular region of the alimentary tract which includes the lower part of the esophagus and cardiac end of the stomach has baffled surgeons from time immemorial, because of its apparent inaccessibility. The intra-abdominal approach has always been a very unsatisfactory one, especially in individuals with a high diaphragm and a low costal arch. Because of this apparent inaccessibility many cases were neglected that could have been subjected to a satisfactory operative procedure.

The determining consideration which has led surgeons to attempt cardio-esophageal resections through the left pleural cavity has been the greater accessibility of approach. The writer can recall the considerable difficulty encountered in establishing intestinal continuity between the esophagus and jejunum in a total gastrectomy performed by way of the intra-abdominal approach.

Churchill has recently described the transthoracic approach to cardio-esophageal lesions in detail and reported a number of successful operations. These operations were all performed because of a malignant lesion situated near the esophageal hiatus.

Block demonstrated the feasibility of approaching and removing a ruptured spleen by the transpleural route in 1934.

Prior to the first World War very little effort had been made in thoracic surgery. Following Graham's classical experimental work upon fundamental surgical physiology of the chest, great strides have been made in this direction. Greater improvement has been made in the gas anesthetics and their proper administration under positive pressure, facilitating and enlarging the scope of chest surgery. This fundamental work has been the basis for the transthoracic approach to lesions of the stomach and esophagus.

Ohsawa, in 1933, operated on twenty patients for tumors of the stomach which involved the cardia. Twelve of these patients recovered. These operations were carried out by what Ohsawa designates as "semi-thoracotomic transabdominal technique" or by the free thoracotomy technique. Bird describes Ohsawa's work as follows:

Inasmuch as Ohsawa's publication is not generally available, a rather detailed description of his approaches is outlined below. It should be emphasized that all of Ohsawa's thoracic operations are done without differential pressure. He says this is easier and safer. Oxygen is always inhaled by the patient, but increased pressure is avoided; he believes positive pressure is detrimental both at operation and postoperatively, presumably because of retention of carbon dioxide. Many of the operations are carried out with procaine anesthesia. In brief, he claims that in the human being the loss of respiratory function on one side is sufficiently compensated for by overventilation, with added oxygen, on the other, and that return to a normal respiratory and circulatory status, throughout the body, is prompter after free thoracotomy than after thoracotomy under differential pressure. It should be recalled that many of the World War surgeons dispensed with positive pressure in their operations for thoracic injuries. Ricard and Ballivet (1938) did not use it in their unsuccessful Torek operation.

Semithoracotomic Transabdominal Technique: This is practically an abdominal substitute for free thoracotomy, and exposure makes use of Marwedel's (1903) left costal release and of Lambert's (1912) mobilization and retraction of the left lobe of the liver. In addition, the hiatus is freed and the diaphragm may be split. The U-shaped skin incision raises a musculocutaneous flap which bares the left upper abdominal muscles and left lower ribs anteriorly. About three centimeters of the seventh, eighth, and ninth ribs or their cartilages are resected, eight to ten centimeters from the midline; the ninth intercostal space is incised for a length of five centimeters and the costosternal attachment of the seventh rib is divided; thus, the left costal arch is destroyed and is retracted upward. If the pleura is injured during this maneuver, no attention is paid to it. The triangular ligament is incised and the left lobe of the liver is retracted toward the right. The peritoneum covering the esophageal hiatus is cut through circularly, the esophagus exposed, and the conditions of this segment of the gullet are inspected. "By this method, we have been able to expose about ten centimeters of the lower part of the esophagus in most of our cases. . . . Depending upon the conditions of the tumor and the presence of adhesions, however, this form of operation may be insufficient and it may become necessary to open the thorax. . . . We believe that in those cases of diseases of the lower portion of the oesophagus and cardia which require thoracotomy, free transdiaphragmatic thoracotomy is the method of choice. For somewhat more complicated cases, free thoracotomy or laparothoracotomy is the most acceptable technic in our opinion."

O'Shaughnessy and Raven (1934) comment on Ohsawa's semithoracotomic transabdominal technique as follows: "On the cadaver, we have found that his method of opening the chest from the abdomen when following the oesophagus up towards the lung root is open to some objections: An incision in the diaphragm stretching from the esophageal hiatus to the costal border is liable to wound the pericardium, and the closure of this incision offers great technical difficulty. At the

same time this method does permit of a preliminary exploration from the abdomen, and although we personally should prefer to begin with the left transpleural approach and then, if access to the cardiac end of the stomach was desired, divide the diaphragm from above (with the pericardium intact), the results obtained by Ohsawa are so remarkable that it seems impossible to dismiss his suggestion lightly." This criticism is not entirely justified because Ohsawa makes it clear that he also prefers the thoracolaparotomic technique for the tumors which extend much above the hiatus.

Free Thoracolaparotomic Technique. Ohsawa continues: "In case the laparotomy is to be done first either a midline or left pararectal incision is made from the seventh costal cartilage to somewhat above the navel; the peritoneal cavity is opened and the conditions of the viscera examined; and then the skin incision is extended upward and laterally along the chest wall so that it forms an arc with the left eighth rib as its chord, the posterior superior limit of the incision corresponding to the height of the inferior angle of the left scapula. Then segments approximately 1.5 centimeters long of the seventh and eighth ribs are resected. (At times only the eighth rib is resected, and occasionally no rib resection is necessary.) The pleura is incised in the seventh intercostal space, and the intrathoracic conditions are reviewed. Next the costal arch in the seventh intercostal space is cut through. The diaphragm is now divided from this point to the esophageal hiatus, thus converting the abdominal and thoracic cavities into a single field of operation. After the necessary operative maneuvers are performed, the thorax is closed, using silk thread for suturing the divided costal arch. In case the thorax is opened first, the steps in the operation are merely reversed."

At the close of his operations, Ohsawa aspirates the air from the pleural cavity. He does not use closed catheter drainage, apparently, but aspirates and drains later as indicated. He notes that residual pneumothorax after thoracotomy favors infection.

Phemister reported the first successful thoracic esophagogastrostomy for carcinoma in this country before the American Association for Thoracic Surgery in 1938. This reaction followed careful preparation by experimental work on dogs and knowledge derived from a previous unsuccessful case.

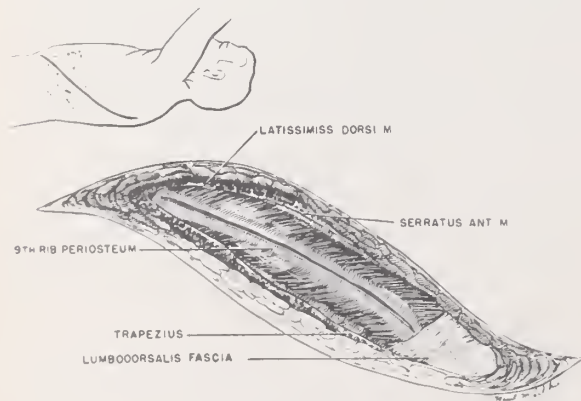


Fig. 1—Transthoracic approach to the stomach—details and location of incision.

* From Churchill and Sweet.¹

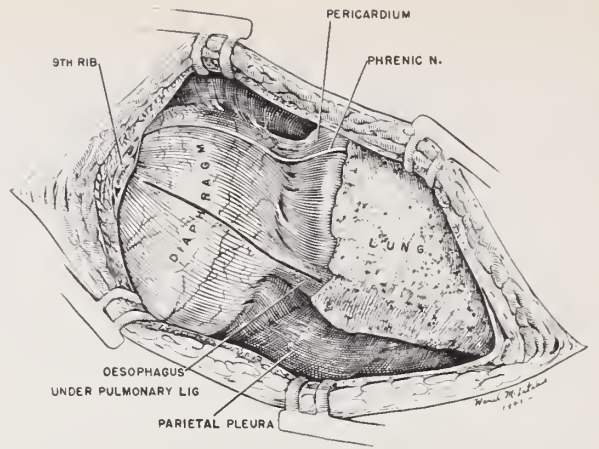


Fig. 2—Transthoracic approach to the stomach—anatomy of the field of operation before incision of the diaphragm.

* From Churchill and Sweet.¹

Marshall, Ochsner, Carter and Cattell reported successful cases in 1939. Various procedures were used including the implantation of the ligated esophageal stump into the fundus of the stomach. Transthoracic esophagogastrostomy has now become established as a satisfactory operation for carcinoma in the region of the cardia and the lower part of the esophagus.

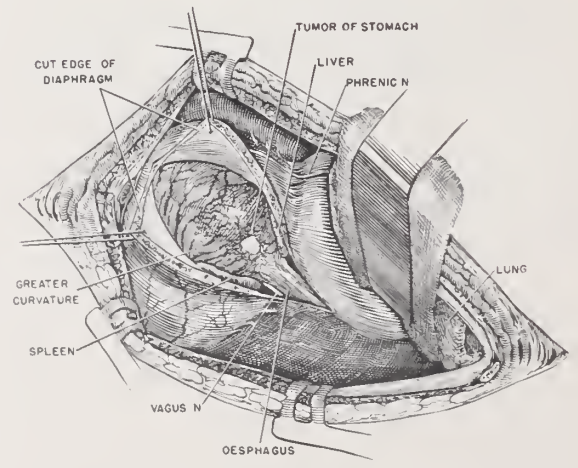


Fig. 3—Transthoracic approach to the stomach—anatomy of the field of operation after the incision of the diaphragm.

* From Churchill and Sweet.¹

Resection of the left ninth rib usually gives ample exposure. The left phrenic nerve is crushed. The diaphragm is split from the esophageal hiatus to its abdominal attachment. The lower end of the esophagus and the cardiac portion of the stomach is removed. The stomach is closed and an anasto-

mosis is made between the esophagus and stomach anterior to this suture line. The flaccid diaphragm is sutured to the stomach all around and omentum is used for reinforcement if it is available. The thorax is then closed with or without catheter drainage as desired. Intermittent inflation of the lungs during the operation is desirable.

The writer has been unable to find in the available literature the use of this approach for a benign ulcer of the cardiac end of the stomach near the esophagus. This transthoracic diaphragmatic approach was successfully carried out on a young Chinese boy who had a benign ulcer of the cardiac end of the stomach approximately four centimeters from the esophagus, in which massive and repeated hemorrhages had occurred for two years.

Case report

H. C., a 16 year old Chinese boy, was first admitted to Queen's Hospital August 18, 1941. He gave a history of nosebleed, tarry stools, and hematemesis. He felt weak and dizzy while standing. Examination revealed tenderness just above the umbilicus. He was pale and anemic. The red blood count was 2,400,000 and the hemoglobin 30%. The feces contained occult blood. A gastro-intestinal series revealed no evidence of an ulcer of the stomach or duodenum, but moderate dilatation of the upper small intestinal tract, the cause of which could not be determined. The osseous structure revealed also a visible trabeculation which suggested a severe anemia or one of the hemorrhagic diseases. He was given four blood transfusions, and remained in the hospital approximately twenty days. At the time of discharge, he was greatly improved; his red blood count was 4,400,000 and his hemoglobin 85%.

Second admission, November 4, 1941. The patient had felt well up until the time of admission. While playing he vomited some bright red blood. He was given some aspirin and in about fifteen minutes vomited approximately 1 quart of blood. At the time of admission the examination revealed only a soft abdomen and definite evidence of blood loss. The red blood count was 4,200,000 and the hemoglobin 52%. The feces again contained occult blood. The x-ray of the stomach and duodenum again failed to reveal a lesion. After three blood transfusions he was discharged to a convalescent home in order to prepare him for an exploratory laparotomy.

Third admission, January 27, 1942. Sudden onset of severe pain in the left upper quadrant one day prior to admission. This pain was continuous in character and exaggerated by respiratory movements. The abdomen was moderately rigid with marked tenderness in the epigastric region just to the left of the mid-line. He was taken to surgery and under a general anesthetic a left rectus incision was made. Examination of the stomach revealed a perforation of an ulcer on the lesser curvature of the stomach near the esophagus. This perforation was fairly well walled off by the left lobe of the liver. The ulcerated area was closed by interrupted sutures, with some difficulty due to its position near the esophagus. Sulfanilamide was placed in the peritoneal cavity and the wound was closed without drainage. He was given three blood transfusions and discharged from the hospital without symptoms and in good physical condition.

Fourth admission, April 12, 1943. For three months the patient was asymptomatic and managed to do a moderate amount of work although it was never pos-

sible to keep him on the proper diet. On April 11, 1943, patient developed headache, slight dizziness and nausea. This was soon followed by vomiting a large amount of bright red blood. Examination essentially negative except for the anemia. The red blood count was 3,600,000 and the hemoglobin 70%. X-ray examination revealed an ulcer of the cardiac end of the stomach near the esophagus. He was given two blood transfusions and sent to a convalescent home to return in ten days for operation.

Fifth admission, May 10, 1943. At the time of this admission the patient was in good physical condition. Operation was performed through an upper left rectus incision with release of the costal arch by dividing the eighth costal cartilage. The coronary ligament to the left lobe of the liver was divided and the lobe retracted medially. Many adhesions were present around the ulcer which was in close proximity to the esophageal orifice. Considerable difficulty in obtaining exposure was experienced due to the high diaphragm in relation to the costal arch. A simple excision of the ulcer was done, all bleeding vessels were ligated and the stomach inverted by a continuous catgut suture, reinforced with interrupted silks. He recovered satisfactorily and remained symptom free until September 9, 1943.

Sixth admission, September 10, 1943. The day previous he vomited a large amount of blood and was admitted weak and lethargic. Physical examination was otherwise negative. He was given repeated small transfusions and placed on a Meulengracht diet.

His condition greatly improved and an x-ray examination revealed a chronic active gastric ulcer, in the cardiac portion, approximately 2 cm. below the esophageal orifice. It was evident that a radical procedure was necessary in order to cure this boy. He had never cooperated on a dietary regime, had a voracious appetite and violated all of the accepted procedures necessary for a conservative cure.

Due to the position of the ulcer, and his anatomical build, a transthoracic approach was decided upon. On September 29, 1943, he was taken to surgery and placed on his right side, and under positive pressure cyclopropane anesthesia, a long incision was made over the ninth rib from the cartilage to the posterior angle. A section of the eighth rib was also removed near the posterior angle. The pleural cavity was entered through the pericostal bed of the ninth rib, exposing the diaphragm near the esophageal hiatus. The ribs were then separated and Balfour abdominal retractors used to facilitate exposure. The phrenic nerve was crushed as it coursed along the pericardium. The left pulmonary ligament was divided and a radial incision made into the diaphragm from the esophageal hiatus to its cartilaginous attachment. The ulcer was found on the lesser curvature and had perforated into the left lobe of the liver. It was practically four cm. from the esophageal orifice and the base of the ulcer lay well within the substance of the liver. The spleen occupied a rather high position and it was thought best to remove it to facilitate gastrectomy. Mobilization of the stomach was rendered difficult because of the many dense adhesions present. The duodenum was easily inverted by interrupted cotton sutures. The stomach was then removed up to the esophageal orifice, leaving just enough stomach wall on the cardia for inversion and more of the fundus for an anastomosis with the jejunum of the Polya-Hoffmeister type. The suture line was reinforced with all available omentum. The diaphragm was then sutured with interrupted cotton sutures and the incision closed in layers after pericostal sutures were applied around the eighth and tenth ribs. Intermittent inflation of the lungs was used at frequent intervals throughout

the procedure. Eight grams of sulfanilamide powder were dusted into the peritoneal and left pleural cavity.

He was given 1500 cc. of blood continuously during the operation and his condition was only fair at the termination of the procedure. After the operation he was placed in an oxygen tent and supported throughout the day with intravenous glucose solution. Constant suction was applied to the esophagus by way of an intra-nasal tube. His convalescence was rather stormy during the first two days and aspiration of the left pleural cavity was necessary on two different occasions. Approximately 2000 cc. of bloody fluid was removed in all.

On the fifth day he was started on water followed by small amounts of milk and cream which have been increased to frequent soft feedings to date. On October 15, 1943, his temperature was normal and his wound had healed. An x-ray examination of the chest revealed only a small amount of fluid in the left base.

Comment

It is unusual for bleeding gastric ulcers to occur in young individuals. The particular location of this ulcer made any type of operation most difficult. Not only was the location an inaccessible one, but he had perforated twice into the left lobe of the liver. He had experienced many massive hemorrhages, often depleting his blood volume to a dangerous level.

All of the accepted measures in treating bleeding gastric ulcers had been tried without success. He had been placed upon a conservative dietary regime for over a year but had cooperated poorly in this type of treatment. He had perforated once, and was treated by simple closure. An attempt had been made at local excision with ligation of the vessels on the lesser curvature near the ulcer.

This transpleural approach was chosen because it was evident that a radical resection of the stomach was necessary and should the occasion necessitate, even a complete total extirpation of the stomach. Fortunately there was enough gastric tissue available, after extirpation of the ulcer, to reestablish intestinal continuity, without recourse to such a radical procedure. The amazing feature about the operation was the exposure of the upper abdomen and the ease with which the duodenal stump could be closed.

Before the introduction of cyclopropane anesthesia this type of operation was not practical. Good surgical technic had to be sacrificed for speed and a long tedious procedure could not be carried out, due to respiratory embarrassment. It was not found necessary to use an intra-tracheal type of anesthetic as sufficient positive pressure could be obtained by a closely fitting mask.

The magnitude of this operation will limit its usefulness to certain types of lesions, namely: carcinoma of the cardio-esophageal region, and certain peculiar types of benign lesions, as the one described above, in which an intra-abdominal approach would be practically impossible. It is to be hoped that recourse will be made to this type of operation more often when the occasion does arise.

Summary

A successful transthoracic subtotal gastrectomy, in a young Chinese boy, with a bleeding benign gastric ulcer 4 cm. from the esophagus, is reported.

A review of the available literature pertaining to the development of the transpleural approach to the cardio-esophageal region, is given.

The more liberal use of this approach for early cardio-esophageal lesions is suggested.

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CLINICO-PATHOLOGIC COMMENT

THE Rh FACTOR: ITS CLINICAL IMPORTANCE

The discovery of the Rh factor by Landsteiner and Wiener^{1,2} in 1940 and its application in the pathogenesis of erythroblastosis fetalis by Levine and his associates^{3,4} in 1941 constitute an advance in medical knowledge of great practical importance to the physician. Accordingly, present day knowledge regarding the Rh factor will be summarized, and several cases of erythroblastosis fetalis will be cited briefly in which this blood factor played a part.

The Rh factor is an agglutinin present in the red cells of approximately 85 per cent of the random population, similar in some ways to the factors A, B, M and N. It is inherited as a Mendelian dominant, as are the others. It occurs only in the red cells, as do M and N, thus differing from A and B, which occur in the tissues and secretions of at least some persons. Normally there are no Rh agglutinins, while A and B agglutinins, of course, are always present. The Rh factors, however, unlike M and N, possess immunizing ability, and it is this property which makes it of such great practical importance in transfusions.

Relationship to Blood Transfusions

For example, an Rh negative patient, receiving repeated transfusions of Rh positive blood, may develop anti-Rh agglutinins in his blood stream (isoimmunization). These agglutinins, upon subsequent administration of Rh positive blood, may produce destruction of the donor red cells and thus lead to a severe or even fatal hemolytic transfusion reaction. In the majority of such cases reported in the literature, the Rh factor has been at fault. In a few cases irregular isoagglutinins were demonstrated which failed to react with Rh positive red cells, indicating that other unknown antigenic substances may occasionally be responsible.

With one exception—obstetrical patients—isoimmunization occurs only after repeated transfusions of Rh positive blood. An Rh negative mother with an Rh positive fetus may develop anti-Rh agglutinins, presumably due to passage of Rh positive fetal red cells through the placental barrier into the maternal circulation, stimulating the formation of maternal anti-Rh agglutinins. Such a patient may undergo a hemolytic reaction after a *first* transfusion of Rh positive blood, and in fact, a number of such instances are on record. It is

quite evident that patients who have become immunized to the Rh agglutinin, either by repeated transfusions of Rh positive blood, or by pregnancy with an Rh positive fetus, can be transfused safely only with Rh negative blood. It is thus of great importance to have available a list of Rh negative donors for such emergencies.

Relationship to Erythroblastosis Fetalis

This disease is a hematologic disorder of unborn and newborn infants characterized by edema (hydrops), jaundice (icterus gravis), hemolytic anemia, or any combination of these three. The basic pathologic process is destruction of fetal red cells, extreme compensatory hematopoiesis and the presence of many immature red cells in the circulating blood. Levine, Burnham, Katzin and Vogel⁴ sought to explain the disease on the basis of isoimmunization by the Rh factor. They found that 93 per cent of 153 mothers who had given birth to babies with erythroblastosis fetalis were Rh negative, and that 89 fathers and 76 affected infants were all Rh positive. They were also able to demonstrate anti-Rh agglutinins in approximately one half of the mothers. These observations have been confirmed by many subsequent workers and the concept of isoimmunization in the pathogenesis of this disease is generally accepted at the present time. The practical lesson to be learned is that babies afflicted with erythroblastosis should *not* be transfused with the mother's blood, an almost universal practice among general practitioners in treating any type of anemia of the newborn, but should, of course, be given Rh negative blood of the same group.

Rh Testing Serum

This serum was not available in Hawaii until just recently; through the efforts of the Honolulu Blood Plasma Bank an adequate supply has been obtained and the Blood Bank at present is accumulating a list of potential Rh negative donors. The testing serum is derived from human donors, usually mothers of babies with erythroblastosis fetalis, and is properly diluted and titred against known Rh positive and negative red cells. Somewhat contrary to my expectations, the reactions with this serum are very clear-cut indeed and there have been very few doubtful or questionable results. However, the test tube method of setting up the reactions should be employed. This consists of mixing a drop of a 2 per cent suspension of the

unknown washed red cells with a drop of Rh testing serum in a small test tube, 7 x 70 mm. The mixture is incubated at 37° C. for one hour, centrifuged at 500 r.p.m. for 1 minute, and the sediment pattern in the bottom of the tube examined by looking at the tube from below. A positive reaction is manifested by an irregular sediment pattern—a negative one by a perfectly smooth homogeneous pattern. The reactions are confirmed by gently resuspending the sediment and examining under the microscope. This procedure could well be adapted to routine cross matching before transfusions, especially with obstetrical patients. At least the cross matching mixtures should be incubated at 37° C., since Rh isoantibodies are more active at this temperature than at room temperature.

Rh serum can also be prepared by immunizing rabbits and guinea pigs with *Macacus rhesus* red cells, although it is a much less satisfactory testing serum as a rule. Only an occasional animal will yield a serum of sufficiently high titre to distinguish clearly between Rh positive and Rh negative red cells. Due to the impossibility of obtaining commercial Rh serum a year ago, an ill fated expedition composed of Doctors Louis Hirsch, B. Wittlin, A. Majoska and myself was organized on July 31, 1942, for the purpose of obtaining *Macacus rhesus* red cells. Upon arrival at Kapiolani Park Zoo it was found that the only monkeys in residence were of the species *Pithecus rhesus*, and one look at these powerful creatures swinging through the air in 25 foot leaps cooled our enthusiasm so effectively that it was decided unanimously not to attempt to bleed the animals. With the present adequate supply of testing serum at the Honolulu Blood Bank, it is unnecessary, of course, to manufacture it in the laboratory.

Case Reports

The first case, Mrs. A., reported in detail in Aug. 1942,⁵ is a 24 year old Portuguese woman who had 3 normal pregnancies by two previous husbands. Her fourth pregnancy, the first by her third husband, resulted in an apparently normal male infant weighing six pounds born spontaneously at term. At three hours of age he was found to be very pale and had a high-pitched cry when disturbed. His hemoglobin was between 30 and 40 per cent and preparations were made for a blood transfusion. Death occurred five and one-half hours after birth, just too soon for him to receive the blood. The autopsy and hematologic findings were unequivocally those of erythroblastosis fetalis. The mother's blood was tested immediately post-partum and three weeks post-partum for Rh isoantibodies and none could be demonstrated. On August 22, 1943, blood was obtained from the patient and her husband. There had been no subsequent pregnancies. Both belonged to Group O and both were Rh positive.

This is an instance, then, of erythroblastosis fetalis in which the Rh factor could not be incriminated as the etiologic factor. Such cases do occur, although they are uncommon, and it is supposed that some unknown blood factor is at fault (an Rh subgroup?).

The second case, Portuguese, a patient of the late Dr. O. Lee Schattenburg, is now 35 years old and has had 7 pregnancies. The first, third, fourth and fifth were normal. The second resulted in a miscarriage at seven months, complicated by placenta previa. The baby lived for just a few hours and it is not known if erythroblastosis was present. The sixth pregnancy resulted in a baby born alive at term with clinical and laboratory evidence of erythroblastosis fetalis. The blood smears, which are still on file at Kapiolani Hospital, show the classical picture of this disease. The baby lived eighteen hours after birth. The seventh and last pregnancy, in 1940, terminated in a stillbirth at five months. No additional data are available. Blood from the mother was tested in Sept., 1942, 2 years after her last pregnancy, for Rh agglutinins and none were found. On Aug. 13, 1943, the mother was found to belong to Group AB, Rh negative, and the father to Group O, Rh positive.

The obstetrical history in this patient is a rather typical one of isoimmunization with one, possibly three of the offspring afflicted with erythroblastosis fetalis.

The third patient, a caucasian female aged 29, had a normal first pregnancy sixteen months ago. The second pregnancy resulted in a stillbirth at term. An autopsy performed on the baby showed microcephalus, bilateral club feet, spina bifida and erythroblastosis fetalis manifested by many immature red cells in smears from the cord blood, extreme extramedullary hematopoiesis, and engorgement of vessels by nucleated red cells. Blood from the mother tested one month post-partum revealed no demonstrable isoantibodies. The mother belonged to group O and was Rh negative; the father was also an O and was Rh positive.

The last two cases cited had normal as well as abnormal pregnancies illustrating the fact that not all matings of Rh negative mothers and Rh positive fathers result in isoimmunization and babies with erythroblastosis. In fact such an unfortunate termination is the exception rather than the rule, and must depend upon the quantity and frequency with which antibody-stimulating fetal red cells gain access to the maternal circulation.

Summary

The Rh factor is an agglutinin with isoimmunizing ability present in the red cells of approximately 85 per cent of the random population. Isoimmunization may occur either in Rh negative patients receiving repeated transfusions of Rh positive blood, or in an Rh negative woman carrying an Rh positive fetus. After isoimmunization has taken place, the administration of Rh positive blood may result in a severe or even fatal hemolytic transfusion reaction; such patients can be transfused safely only with Rh negative blood. Iso-

immunization during pregnancy satisfactorily explains most cases of erythroblastosis fetalis and was shown to play an etiologic role in two of the three cases cited. Babies afflicted with this disease should not be given blood from the mother but should be transfused only with Rh negative blood of the same group. A list of Rh negative donors is being compiled by the Honolulu Blood Plasma Bank for use in such emergencies. Laboratories should incubate cross-matching mixtures for all obstetrical patients at 37° C., since Rh isoantibodies are most active at this temperature and may be missed if the cross-matching is done at room temperature in the usual manner.

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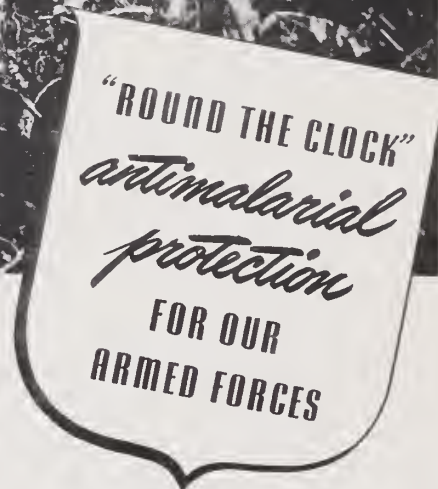
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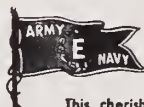
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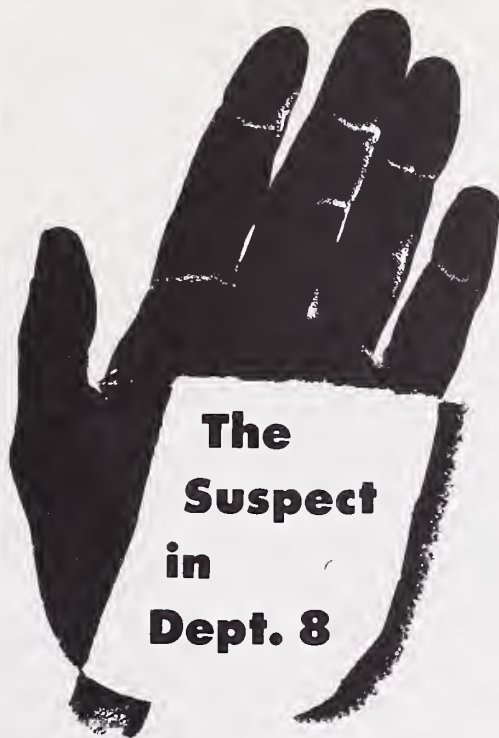
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CIVILIAN HOSPITAL NEEDS, II

WORLD PLANNING FOR TUBERCULOSIS CONTROL

A plan for a U. S. Military Tuberculosis Commission is proposed by Dr. Charles M. Hendricks, Colonel, M.C.R., and Chairman of the Council on Military Affairs and Public Health of the American College of Chest Physicians. This commendable plan appears in the May-June 1943 issue of *Disease of the Chests*, Vol. ix, No. 3.

We are committed by the great leaders of our United Nations to the establishment of the four freedoms and all that the four freedoms entail, which includes of course, the stamping out and control of pestilence, not the least of which is tuberculosis.

Tuberculosis is a persistent camp follower of war so there is little point in enumerating the many reasons why we should accept tuberculosis to be the greatest disease menace to the people of all enemy-occupied countries. . . .

It is to be presumed that our present policy contemplates keeping our armed forces in many of these countries for an indefinite period. At least until orderly government has been established. No doubt this is why the school for military government has been convened at Charlottesville, Virginia.

Many believe that as our armies move into these countries, they should be accompanied by a trained medical personnel prepared to meet all local medical problems, especially tuberculosis problems. It is felt that much more could be accomplished by specially trained control teams attached to the medical department of each army of occupation, and not wait for various foundations to undertake the necessary tasks at a later date. These military control teams could at least blaze the trail and should information assembled by them reveal great problems of hospitalization and rehabilitation beyond the province and scope of the medical department of the army, such information could then be made available to the agencies and foundations prepared to take over and complete the work. . . .

A great deal of the information required is already in the hands of many of our medical and intelligence agencies. Other valuable information may be obtained from the governments in exile in England, the French authorities in North Africa, and from all neutral sources.

We have prepared a suggested plan, somewhat rough, but which can be developed and improved as time and changing conditions may warrant. If a definite plan is worked out now, the regrettable common saying, "Too little and too late" will not apply in this particular instance. . . .

Health, like Charity, begins at home. Let us look to our own home front—if not *first*, then at least *also*. Dr. H. H. Walker, Director of Leahi Hospital, presents in the following report an appalling shortage, in our own city, of hospital beds for tuberculosis patients.

SHORTAGE OF TUBERCULOSIS HOSPITAL BEDS ON OAHU

A critical shortage of hospital beds for tuberculosis patients exists in the Territory. Although this situation exists to some extent on the other islands, the major problem is found on Oahu. The facilities of Leahi Hospital, intended to provide for the hospitalization of the tuberculous on this island, cannot meet the existing needs. This situation, which was apparent to some degree before the war and has become increasingly serious since December 7, 1941, can be attributed to a great extent, directly or indirectly, to the effect of the war upon the community. Many factors, tangible and intangible, have been responsible. The most important are:

- (1) Substantial increase in population.
- (2) Acceleration of tuberculosis case finding activities including especially the increasingly widespread application of mass x-ray surveys.
- (3) The intensified efforts to hospitalize diagnosed tuberculosis cases early, in order to minimize spread of disease and institute treatment when it is most effective.
- (4) The breakdown in health of individuals with latent or unsuspected tuberculosis due to the effects of prolonged physical and mental fatigue and other more intangible factors associated with the war effort.

Population figures for the Territory have not been available since the onset of war. However, it can be estimated with reasonable accuracy that the population of the City and County of Honolulu is somewhere in the neighborhood of 363,000. The following table will show, using this estimated figure, that the population of this area has increased 79% since 1930, whereas during the same period, the bed capacity of Leahi Hospital has increased a mere 13%.

	Total population City & County	Population City & County 15 yrs. and over	No. beds Leahi Hospital	% Increase Population City & County	% Increase Population City & County 15 yrs. and over	% Increase Admission Leahi Hospital
1943	363,000 (estimate)	258,000 (estimate)	485	79%	96%	13%
1940	258,256 (U.S. Census)	183,952 (U.S. Census)	422	28%	40%	0.0
1930	192,923 (U.S. Census)	130,725 (estimate)	428	0.0	0.0	0.0

At present there are 444 patients at Leahi Hospital, with an additional 168 civilians being cared for at Tripler General Hospital, where temporary hospital facilities were provided by the Army in November, 1942. Further, another 72 patients in urgent need of hospitalization are on a waiting list and will wait two to three months, on an average, before a bed is available. It is obvious, then that *Leahi Hospital is in need of 230 additional beds to meet the existing needs for the known urgent cases.* The Board of Health estimates a need for another 150 beds for patients diagnosed but not listed for admission at present.

Although accurate tuberculosis morbidity figures are not available, it is possible to obtain a fairly accurate idea with respect to bed requirements for the present and immediate future from the results of mass x-ray surveys. This diagnostic method, which is generally conceded to be one of the most powerful methods of tuberculosis control, is being utilized increasingly in the Territory. During the past two years, over 12,000 young males between the ages of 18 and 36 were x-rayed as a part of their examination for the selective service. It was found that about 2% of this group showed some evidence of tuberculosis. Figures for the mainland for similar surveys conducted on hundreds of thousands of young presumably healthy males averaged about 1%. Let us assume that an ideal complete x-ray survey of the entire population above 15 years of age of the City and County of Honolulu was conducted and that 2% of the group was found to have evidence of tuberculosis. Based on the U. S. Census figures for the City and County of Honolulu for 1940 (183,952 over 15 years of age), 3678 cases of tuberculosis would be discovered. Assuming conservatively that only one-third this number were in need of hospitalization, it would be evident that a total of 1229 beds would be needed, or 744 above the present capacity of Leahi Hospital. To be sure, the possibility of surveying the entire population of this Island is remote at the present time, but nothing short of this ultimate goal will suffice, if we expect to reduce the incidence of this most devastating disease to the minimum. Obviously, a necessary complement to the finding of cases is

the provision of an adequate number of hospital beds. A serious shortage of beds exists now and may be expected to become even more critical in the next few years as mass survey methods are more widely applied.

RECOMMENDATIONS

(1) That funds be obtained to expand the facilities of Leahi Hospital to provide 500 additional beds. It is fully appreciated that permanent construction of such magnitude cannot be realized for some time. Nevertheless, it is felt to be most essential that every effort be made to obtain funds and prepare plans in order that construction may be started at the earliest moment possible.

(2) That the present emergency be met by constructing wooden buildings of semi-permanent nature at Leahi Hospital to provide 200 additional beds, which with the opening of the additional wards at Wahiawa Hospital will furnish a total of 300 beds. These buildings constructed at Leahi Hospital would serve to replace several existing obsolete wooden buildings when permanent construction was completed.

—H. H. WALKER, M.D.
Director, Leahi Hospital

THE HONOLULU HOSPITAL SITUATION
IN GENERAL

The hospitals of Honolulu have been built in the main by funds subscribed by public spirited citizens. They have been able to meet the deficit which inevitably occurs in a hospital open to all who come by the income from endowments. The changes in the economic condition of the community and the world have made such large donations almost out of the question for the present and the future. (Endowments no longer yield an income worth while on a safe investment.) In addition to this, improvements in hospital and medical practices have inevitably increased the cost of operation of hospitals.

For the past several years it has been commonplace for any one of the several Honolulu hospitals to have no vacant beds for hours and days at a time, and this during periods when there were no epidemics or unusual prevalence of disease. The dangerously small number of hospital beds per thousand population was recognized by the medical profession and by hospital authorities and at the time the war began Queen's, St. Francis, Children's and Kapiolani hospitals had virtually completed all arrangements and acquired the funds for

construction of considerable additions to their capacity. Up to now this construction has been impossible because the materials could not be obtained.

Before major hospital construction is undertaken in Honolulu someone, preferably an outsider with no attachment to any local institution, should make a detailed survey of the community's present and future hospital needs to determine how such construction can best meet the needs of the community. All local people interested in the problem are attached to one hospital or another and will be swayed by such an attachment. An outsider, trained in hospital management, should be able to determine after a survey the necessary number of beds in each category and where they should be placed to result in the greatest efficiency. His opinions, of course, would not be binding upon the trustees and directors of these institutions, but such advice should certainly be sought before large sums of money, most of it probably tax money, are expended. Up to now Honolulu hospitals have grown like Topsy, without planning for the future. It is time that an over-all plan is adopted.

The Medical Section of the Office of Civilian Defense has provided approximately 1,500 additional beds on the Island of Oahu since the beginning of the war. These hospitals, however, are intended primarily for the care of war casualties, not—as they are doing—to care for the overflow from Honolulu's over-crowded hospitals. They are adequately equipped to save life and prevent suffering, but provide few of the comforts and refinements expected in permanent hospitals. They are in buildings which at the close of the war presumably will be returned to their former uses such as *schools*, etc. Only three of these hospitals are occupied by patients now.

The recent agitation for construction of large numbers of homes and apartments in Honolulu is, of course, very praiseworthy and very necessary. It seems obvious that the men employed at Pearl Harbor, Hickam Field, etc., now living in dormitories where as many as fifteen men are housed in apartments designed for single families will, when their families arrive, cause Honolulu to be intolerably over-crowded. Schools, churches, stores, restaurants, transportation systems and utilities will all have to be greatly enlarged to meet this increase, but the hospitals are barely able to cope with the situation as it is *now*. Even a slight increase in the over-all load on them would be dis-

astrous. It is true that there are patients occupying hospital beds who do not in fact need them because their illness could perfectly well be cared for at home, but the number of these is not considerable as compared with the over-all problem.

It is also becoming increasingly apparent that it will never be possible for a hospital operating on truly eleemosynary lines and furnishing first-class hospital care to operate at a profit. The impossibility of meeting a resulting deficit as it has been met in the past has already been alluded to. Charges to patients have been steadily increasing with the rise in the cost of living, and are now so high that to many people they are prohibitive even with the general increase in income, except for brief illnesses. There remains only one solution and that is that the community will have to meet this deficit with tax money as they have already had to do with Leahi Hospital, for example. Hospitals, in general, are reluctant to enter into an agreement which involves the use of tax funds because it usually brings with it government control of the institution, and political angles begin to be introduced into the operation of the institution, but this need not necessarily be so. The Leahi Hospital is a fine example of an institution which for many years has been administered by public-spirited citizens drawn from large business houses and the professions, but whose funds are almost entirely drawn from tax sources. The Board of Supervisors of the City and County is represented on the Board of Trustees of the hospital, but never at any time has there been the slightest suggestion of an attempt to introduce improper activities into the affairs of the institution. Surely such a scheme of operation is feasible for other hospitals and also surely everyone would agree that political activities have no place in the administration of an institution for the care of the sick.

Everyone is aware of the imminent increase in the cost of operating hospitals due to the rising cost of living and the entailed necessity for increasing the wages of hospital personnel. It is time that the Territorial and County governments gave consideration to subsidizing hospitals and increasing their bed capacity. If this is not done and done soon, and the community by chance is faced with an epidemic such as occurred in 1919, the unnecessary suffering and loss of life may well be a shocking thing. We are living over a volcano which is not dead, only sleeping.

—H. L. ARNOLD, M.D.

Medical Director, O.C.D.

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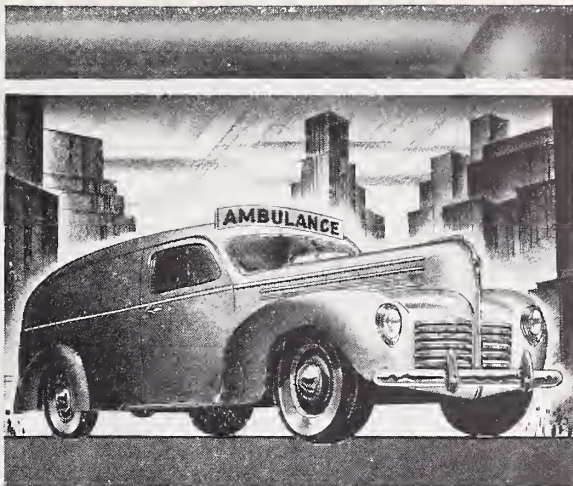
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NOTES AND NEWS

REPORT OF YOUR DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION THE HOUSE OF DELEGATES MEETING, CHICAGO, ILLINOIS

June 7-9, 1943

You have honored me again by electing me as your delegate to the American Medical Association and I am pleased to submit this report.

At this meeting all states were represented, all the sections, and all government services. Honor guests were the Secretary of the Canadian Medical Association, the President of the American Bar Association and the Surgeon General of the U. S. Army.

National Membership

In spite of the war and the great migration of people from one part of the country to another and the large number of medical men in the Service, the total membership of the Association was 122,741, an increase of 25,630 in the past year. Twenty states showed a loss in membership.

Hawaii Membership

Of the 395 physicians in Hawaii, 341 are members of the American Medical Association, a gain of 21 over 1942. Of these 341 members, 127 are Fellows of the Association. To become a Fellow costs nothing but the interest and effort of application, plus a subscription to one of the Association's journals.

Cancellation of the Annual Session

The action of the Trustees to cancel the scientific meeting seems to have met with general approval. Next year's meeting will be held in St. Louis, but it has not yet been decided whether a scientific session will be held.

Participation in the War Effort

For more than two years all departments of the American Medical Association have been actively engaged in the war effort. Members of all councils, the Board of Trustees and the Administrative personnel served in various capacities of official standing in Washington. A sub-office of the Procurement and Assignment Service for physicians, dentists, and veterinarians is established at the Association headquarters to compile material for the use of the Army, Navy, and Public Health Service.

The Library has assembled material relating to health in all parts of the world. Abstracts of this material are published in the new journal, "War Medicine."

At this meeting an additional Reference Committee was created on "war participation", to which your delegate was appointed.

Publications

Income this year from subscriptions and advertising space in the Journal were \$8,859.00 and \$26,717.00 in excess of 1941, respectively.

Total gross income from all sources was \$36,-108.00 more than in 1941. There was a reduction of income from investments; cost of paper was much increased, therefore necessitating a reduction in quality, and in the size of some of the publications. Salaries of employees are much increased; there are fewer employees.

There was a slight decrease in the number of subscribers to the Journal, and of the nine special Journals, five were published at a loss of \$16,-000.00, while produced \$11,182.00 gain. "War Medicine" has steadily gained and now, in its second year, has an increased circulation of 33 per cent. "Hygeia" is steadily growing in popularity with 96,000 lay and 15,000 physician subscribers, with a profit of more than \$40,000.

The Library

Requests for material on war medicine led all others for 1942, and deviating from the old policy, package service has been extended to Hawaii, Mexico, and the Canal Zone.

The Council on Foods and Nutrition

The Council on Foods and Nutrition has had a busy year keeping abreast of developments arising out of the war in the study of nutrition, food substitutes, food fortification, and advice to national agencies regarding supplies to other countries.

Council on Physical Therapy

The war has brought critical attention to artificial limbs, audiometers, and hearing aids, respirators, optical devices, artificial respiration, ultra violet radiation for disinfecting purposes, air conditioning, etc.

Council on Industrial Health

More attention has been centered on industrial

health than on any other topic. Occupational disease is taking the lead, not only because of unsatisfactory and crowded living conditions of war workers, but also because of diseases springing from new industries using or making new synthetics, drugs and other toxic substances. Nutritional deficiencies of the war worker have been thrust upon the physician.

Bureau of Health Education

Increased travel difficulties reduced the activities of this Bureau considerably during the past year. This is compensated for by increased publications and radio broadcasts. A new program, "Doctor at War" has proven to be very popular. Your delegate was invited to participate in one of the five broadcasts from WAIT over a national hook up.

Bureau of Legal Medicine and Legislation

Continued efforts to stimulate legislation prohibiting sale of barbiturates, except on prescription, are being carried on. Many new licensure problems are arising in all states, regarding location and relocation of physicians, also the shortening of the internship period and acceleration of premedical education.

In Philadelphia, legal medicine is taught to all students of medicine, law, pharmacy, and police. This appears to be sound and is proving to be very popular.

The new law requiring a certified check from physicians paying tax imposed by the Harrison Narcotic Act will continue in spite of resistance by the American Medical Association, until and if it is repealed by Congress.

The Revenue Act of 1942 (Income and Victory Tax) imposes an additional tax burden on the physician but effects no change in the deductions that may be justly claimed for professional expenses. A new provision authorized tax payers to deduct medical expenses.

Scientific tests for intoxication have received recognition by the legislatures and courts, and the American Medical Association is working on a model law.

The American Law Institute has adopted a code of evidence recognizing the privileged status of the physician-patient relationship.

Veneral disease is more and more becoming reportable. Premarital examinations are being encouraged and becoming law.

Modifications of the nursing laws for the duration are being enacted.

Female physicians are being commissioned in the U.S. Army.* Bills to supply medical care to

wives and infants of men in the Service are being considered. Construction of Federal Medical Schools is being sought by bills in Congress now pending. Bills allowing chiropractors to treat the beneficiaries of the U. S. Employees' Compensation Act are again before Congress.

A new Board, "The National Resources Planning Board," has been established. After listening to a long tiresome address by the President, Professor Merriam, one notes three striking points:

1. Much thought is being devoted to the medical and economic welfare of the people.
2. No physician or qualified medically educated person is a member of the Board.
3. The Board with its wide bureaucratic powers does not seem to know just what it does want, nor what to recommend. It seems to be hopelessly befuddled with the intricate subject of medical care, being sure of one slogan only, "Medical care from the cradle to the grave."

Bureau of Medical Economics

The census of physicians done by the American Medical Association for the medical procurement plan was finished and turned over to the Army at the close of 1942.

Medical Service Plan

Reasonably complete information is now available on medical service plans, most of which operate over statewide areas. The demand for prepaid medical care is increased when the quality is guaranteed by the medical profession.

Your delegate attended the meeting and discussed various plans under consideration by the "Medical Service Plans Council of America." Most of the plans discussed were for limited service. I think we are to be congratulated on our "Hawaii Medical Service Association." Our plan is the best and most complete of any that I heard discussed.

Prepayment Hospitalization and Similar Plans

There has been, over the past twelve years, continual and gradual encroachment of hospitals into the practice of medicine. Hospitals are offering certain medical services as a part of hospital care. It is certainly not ethical for hospitals to offer the services of licensed physicians to patients on a contract or service basis, nor is it in the best interests of the patient or the medical profession where the hospitals are collecting fees, and acting as third person between the patient and his physician. Nor is it ethical for a hospital to charge more than a fair overhead for any department. It has been shown that certain hospitals use the profit from one service to underwrite losses suffered in other departments.

* And one very recently, in the Navy as well.—Ed.

Hospital service may be defined as limited to "Hospital accommodations such as bed, operation room, medicines, surgical dressings and general nursing care," and most certainly should not include anesthesia, urology, laboratory or x-ray, other than to maintain such services at slightly more than cost, to take care of wear and tear on equipment and replacement. The department of radiology is the chief bone of contention, because it is a department of medicine, just as is surgery. The practice of radiology is a practice of medicine, and the radiologist should send his own bill, rather than receive a salary. Many of the seventy-seven Blue Cross prepayment hospital plans, with eleven million subscribers, have this bad feature. It does not directly affect us now, but it may at any time. Local physicians may unwittingly subscribe to this, but each speciality is endangered by so doing and it is but a question of time until the place will expand to include all. It would appear, therefore, that any departure from a plan to limit hospitals to hospital care, must be in the interests of education only.

It is estimated that 37 per cent of all radiologists are employed on a salary basis, 9 per cent lease the department on a fixed rental, 54 per cent share gross or net receipts with the hospital. Where the radiologist shares the receipts with the hospital there is a tendency to increase the use of x-ray.

Another bad feature of such plans is the fact that all-inclusive plans act as a "selling point" of such a plan in competition with other plans and old line insurance policies.

Recognizing that such plans are already in existence in Hawaii, it behooves the medical profession to support and promote the Hawaii Medical Service Association, an organization of the doctors designed to provide:

1. Medical practice under the control of the physicians.
2. No third party interposed between doctor and patient.
3. Absolute freedom to choose a legally qualified physician.
4. Confidential relationship between doctor and patient.
5. Medical service not connected with any cash benefits.

The physicians should be unanimous in opposing any plan that will permit hospitals to enter the practice of medicine.

Blood Bank

You will all know the position that the medical profession of Honolulu has earned in medical affairs of the nation; in all parts of the United States one hears favorable comments on its work,

not only at the time of the attack, but the year before and since. I have visited many blood banks, and I found none superior to our own, the special feature of our blood bank being the borrow-repay method. It seems logical that the blood bank should be promoted on a peace-time basis. Considering the 800 per cent increase in whole blood transfusions in the past year and the fact that the system has been demonstrated to really function, it now becomes the responsibility of the medical profession and the community to prepare plans to insure its continued service. Plans are in the making to insure its continuity and these plans will be presented to you at a later date. Due to the impending curtailment of appropriations for O.C.D. activities, the Blood Bank must expect to suffer drastic cuts in its budget and it will be the responsibility of the profession to support it in every way that may be required. It is my guess that as time goes on the public will become more and more complacent and indifferent. Observations on the mainland, among the Red Cross procurement centers, indicate an immediate reduction of volunteer blood donors with the publication of favorable war news. Immediately after the successful Tunisian campaign, some donor lists dropped as much as 50 per cent.

For the convenience of the physicians, the Blood Bank has assumed full responsibility in all matters concerning repayment. Our activities have been reduced until at the present time approximately one half of all blood drawn is in repayment for loaned blood. We are now titrating all our plasma and we endeavor to use only plasma of a low agglutinin titer.

We beg your cooperation in the use of O whole blood which has been treated with substances A and B. Thousands of transfusions have been done with blood treated in this manner without accident or reaction.

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United States because the American people, by and large, are too individualistic to submit to such complete regimentation. He thinks, however, that all the regimentation and influx of European ideas that come with the war, and the influx of refugee professional people will be a fatal blow to organized medicine and the free choice of physicians.

In my travels I have observed tremendous changes. It is hard work to travel now, unless you have plenty of time. This is the era of great migrations of young people. Young women with babies is the rule. Some say it is unnecessary travel, but is it unnecessary when we find that they are following their husbands about the country on defense jobs, or, their homes broken up with husbands in the service, going to live with their parents for the duration?

F. J. PINKERTON, M.D.

INDEX TO ADVERTISERS

Abbott Laboratories	43	Mead Johnson & Co.....	Back cover
American Factors, Ltd.....	50	Mercke & Co., Inc.....	55
Cutter Laboratories	48	Park, Davis & Company.....	49
Don Baxter Co.....	38	Philip Morris & Co., Ltd., Inc.....	37
Eli Lilly & Company.....	6	Sandoz Chemical Works, Inc.....	31
Galen Company	2	S.M.A. Corporation	24
Hawaii Medical Service Association.....	Third cover	Sharpe & Dohme.....	1
Kodak Hawaii, Limited.....	32	Squibb & Sons, E. R.....	44
Lederle Laboratories, Inc.....	56	Upjohn	5
Love's Biscuit & Bread Co.....	42	Watkins Printery	
McArthur & Summers Pharmacy.....	6	Winthrop Chemical Company, Inc.....	57
Marcelle Cosmetics	28	Wyeth & Brother, Incorporated.....	Second cover



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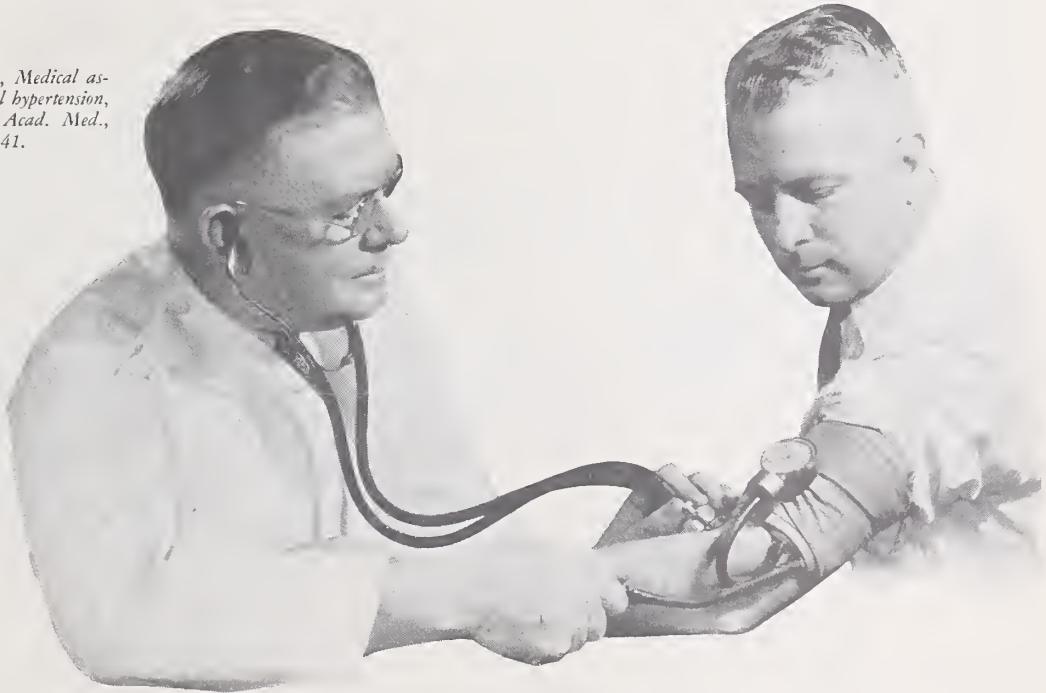
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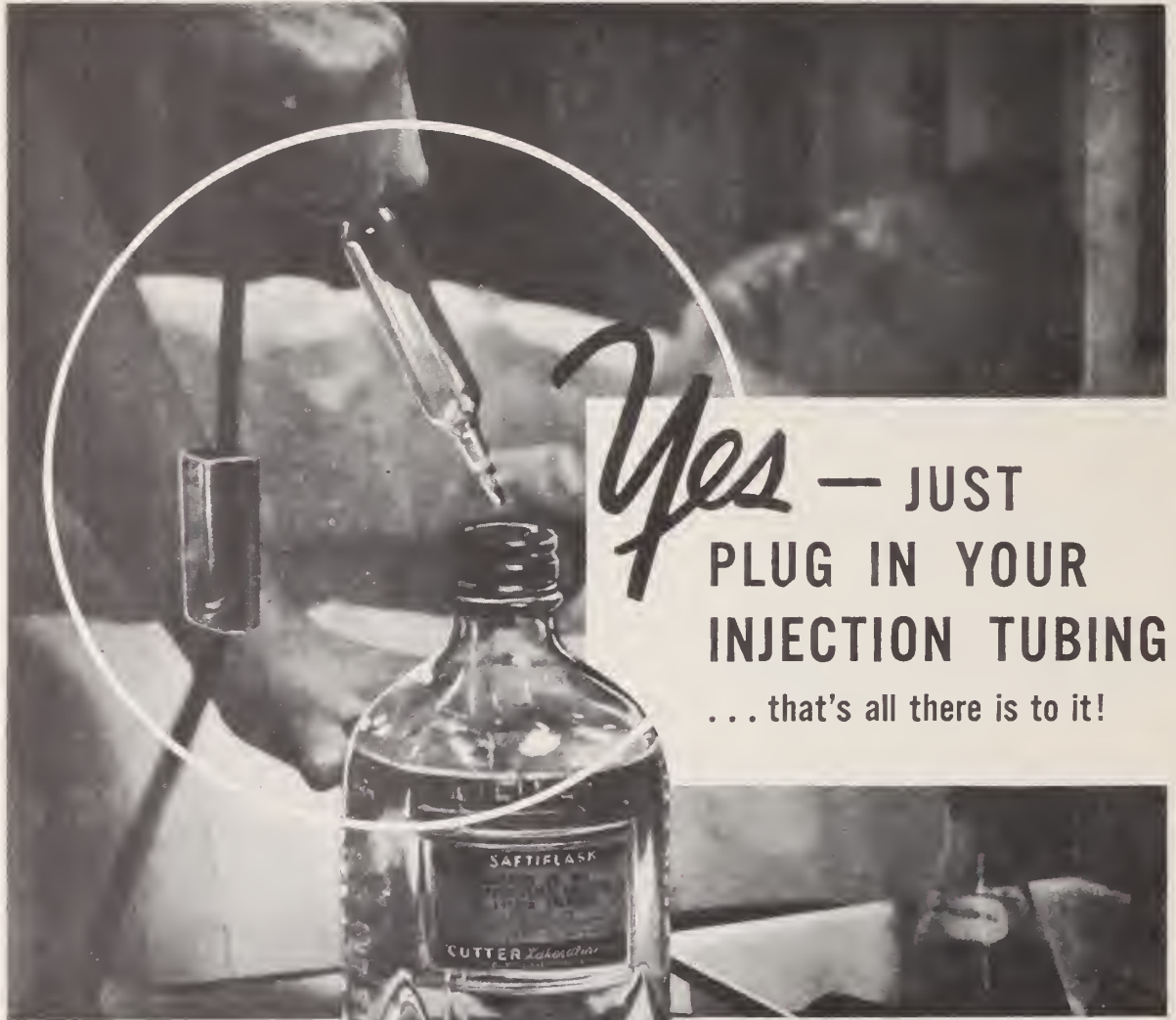
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TABLE OF CONTENTS

SEXUAL STERILIZATION:

THE PHYSICIAN'S OBLIGATION TO HIS PATIENT

H. E. Bowles, M.D. 65

MULTILOCULAR PSEUDOMUCINOUS CYSTADENOMA OF THE PANCREAS

Report of a Case Successfully Extirpated
discussion of its surgical treatment.
Shoyei Yamauchi, M.D. 67

HEART DISEASE IN HAWAII

Review of 160 Consecutive Cardiac Cases
Seen in a General Medical Clinic in Honolulu
with Discussion of Its Surgical Treatment.
Alfred S. Hartwell, M.D., and
Joseph W. Lam, M.D. 71

EDITORIALS

WAS IT MURDER? 77
Post War Planning 78

PROGRESS IN INTERNAL MEDICINE

Reactions Following the Readministration of
the Sulfonamide Drugs with a Report of Two
Cases

William B. Patterson, M.D. 81

RECENT ADVANCES IN SURGERY

Pilonidal Cysts
Robert G. Johnston, M.D. 85

CLINICO-PATHOLOGIC COMMENT

Approval of Laboratories to Perform
Pre-Natal Serologic Tests
Bernard Witlin, Sc.D. 91

COUNTY SOCIETY REPORTS 95

LIBRARY NOTES 101

NOTES AND NEWS 105

INDEX TO ADVERTISERS 106

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Sexual Sterilization: The Physician's Obligation to His Patient

H. E. BOWLES, M.D.

Honolulu

The following interviews with patients in recent weeks have led the author to ponder deeply the responsibility of the physician in advising his patients in the matter of sexual sterilization.

REPORT OF CASES

Case 1. The patient, a 29 year old Caucasian female, was sterilized at the age of 16, when pregnant out of wedlock with her first child. The child died subsequently of causes not known by the patient. She stated that she was an inmate of an institution where there were many girls who were in trouble of various sorts. This patient had married and wished to have a child. Her husband had steady employment and she worked in a garment factory, earning a respectable income.

Case 2. The patient, a Caucasian female, gave her age as 42, looked younger, and had an attractive appearance and manner. She was single and planned to marry soon. She stated pointblank that she wished to be sterilized; was not interested in contraceptives; and did not wish to have a child. Furthermore, she stated that she saw no reason whatever why she did not have a right to request sterilization; that she and her prospective husband were old enough to know their minds; and that she did not see why a physician had any right not to accede to her request. A careful physical examination revealed no noticeable physical defects.

Case 3. The patient, a 24 year old Japanese female, with a Caucasian husband and a 2 year old child of which he was the father, was pregnant again, four months, her husband being the father of her unborn child. She had quarreled with her husband over several trivial matters, felt she would leave him, and asked for and expected to have sterilization immediately following the birth of this, her second child.

Case 4. The patient, a 32 year old Caucasian male, applied to his physician for a vasectomy, stating that he had four children and—though physically fit and well-to-do—felt that these four were all that he could raise properly. Vasectomy was done. He did not separate from his wife. Some time later the patient again called upon the surgeon who had performed the vasectomy and on questioning admitted having told a falsehood the first time. At the time when he claimed to have had four children he actually had only one. Both he and his wife now urgently wished to have more children as times were better.

Case 5. The patient, a 19 year old single Caucasian female, was sterilized by the popular puerperal technic despite the fact that the medical consultant (a competent cardiologist) stated on the hospital record that the patient had a minimal heart lesion and that future pregnancies were *not contra-indicated*. There was never any evidence of decompensation during the prenatal period, and labor and delivery were uneventful.

Case 6. The patient, a 34 year old, part-Hawaiian female, presented herself with an unmistakable early pregnancy. She stated that she had had a puerperal sterilization following the birth of her third child five years previously. The three children were girls. She did not see how she could be pregnant, although, if so,

she was very happy about it as she still clung to the wish for a son. She was delivered of her child—another girl—at full term. She declared she was relieved that, after all, she was still a normal woman and able to bear children. She was extremely happy the pregnancy had occurred even though she still had only daughters. She hopes to try again to have a son.

Case 7. The patient, a 21 year old Filipina, recently married, at the age of 14 had become pregnant by her stepfather. Upon court order she was aborted and sterilized. Now she wished to have children.

Case 8. The patient was a part-Hawaiian woman, 34 years old, the mother of two healthy teen-age children by a previous marriage. She was married again to a non-commissioned officer in the Army. At the age of 33 she presented him with their first child. After this she asked to be sterilized. She was dissuaded and at the age of 4 months this baby died of whooping cough pneumonia. She is now in mid-pregnancy. Every time she visits her physician she speaks of how deeply grateful she is that she was not sterilized.

Case 9. The patient was a 27 year old Caucasian female, newly married. After eagerly looking forward to the birth of her first child, she was broken-hearted at aborting in the third month. A curettment was done for incomplete abortion with hemorrhage. The patient's husband immediately consulted a surgeon and made tentative arrangements for a vasectomy. The patient came to her obstetrician in tears, stating that all she could think of was, "How soon can I try again to have a baby?" The surgeon was informed of the true state of affairs and the vasectomy was cancelled. A careful history would have disclosed the fact that the couple had no living children, and some embarrassment could thus have been avoided.

COMMENT

These are cases picked from our everyday, run-of-the-mill, practice. They are presented with the urgent request that they be used as food for thought and for guidance in matters which are the physician's sacred trust. Let us not forget the infinite possibilities for the creation of family tragedies that may result from the performance of unnecessary operations on the male or female reproductive organs. The physician should take due heed of the fact that although man may be made in the image of God he cannot presume to be possessed of divine wisdom.

The decision of the patient to request sterilization is prompted by many and varied motives, among which the commonest are economic uncertainty, insecurity, and the desire to give the offspring the best possible education. Many couples feel that two children are enough, especially if both sexes are represented. Others decide upon three or four or more as the case may be. It is an

undeniable fact that the operation of sterilization is often carried out without adequate consideration of other birth control measures, with no consideration for the gaping hole in the family circle which might follow in the wake of an automobile accident, an illness, or one of the terrible consequences of modern warfare. No physician or parent is gifted with insight into the future and can predict these events. Who are we to assume such responsibility?

Further, the operation of vasectomy, like resection of the Fallopian tubes, is understood by numerous patients to be a reversible process. It is true that there are many cases where continuity of the vas or oviduct has been reestablished and children have been born subsequently. But what right has a surgeon to guarantee such a result? Likewise let us not forget that ectopic gestations are not unknown under such circumstances.

A few words about the well-meaning family investigator who comes upon a woman up to her elbows in the family washtub, with a sick child in bed, the baby unfed, dishes unwashed, the husband out of employment—perhaps drunk—and five or more children—the mother perhaps a young woman of 24. Some such conversation as the following may ensue:

Investigator: "Mrs. X, you are having such a struggle, you should not have any more children."

Mrs. X: "What shall I do about it?"

Investigator: "Sign a paper and the doctor will fix you so you do not have to have any more children."

The patient enters the hospital later and a sterilization permit is unhesitatingly signed by her and by her husband. Now at this juncture the staff physician is notified that the patient has been admitted for sterilization. What is his responsibility? Social workers have spent much time on the case; papers have been signed; a hospital bed occupied; the operation scheduled; instruments sterilized; and people assembled to perform the task.

Shall the physician's preliminary interview be calculated to:

(1) Emphasize the gravity of the step the patient is about to take?

(2) Determine whether the idea was that of the patient or whether someone called on her and sold her the idea—much as someone might sell a vacuum cleaner or other commodity?

(3) Make it clear to the patient that she will probably never be able to bear children again even though she may lose those she has through illness or accident?

(4) Make it clear to the patient that there are slips in technic and that, as a general rule, the physician is not in a position to guarantee that a subsequent pregnancy may not occur?

(5) Ascertain whether the patient has properly evaluated other birth control measures before considering sterilization?

Or shall the physician avoid all discussion and merely assure the patient that she will soon be sterilized and will not have to worry any more about becoming pregnant?

Most patients would react, and finally decide, in accordance with the approach made by the physician during the interview. It is surely better to get this settled beforehand than to have patients change their minds or decide hastily at the last minute before operation.

Shall we believe that the economic status of a family is necessarily fixed? Shall we dismiss as merely unlikely the possibility that death in some form may strike a family after a sterilization operation has been performed on a man or his wife? Can we truthfully say that the operation of sexual sterilization never has any untoward effects on the psychology of the person who has been operated on?

Let us accord sterilization its proper place. Let us remember its importance in prolonging a mother's life in those individuals where pregnancy would mean a burden which her frail body could not endure. If multiparity alone be the indication let it be truly a sufficient number of children. It is hard to set exact figures.

It would seem that the operation of sexual sterilization should never be performed in an office or in a hospital without a proper, signed consultation, after careful weighing of all the facts. Is it not as important as to secure a consultant's signature prior to a curettement? It would seem equally proper for the surgeon to consult with the obstetrician as to whether the sterilization is properly indicated, before performing a vasectomy.

The foregoing paragraphs do not constitute a scientific paper which conforms to the routine formula of such an article, with numerous abstracts, quotations and references, but it is hoped that it may serve its purpose in making us more acutely aware of what we owe our patients when they come to us for guidance in these matters.

The Clinic, 881 Hotel St.

Multilocular Pseudomucinous Cystadenoma of the Pancreas

REPORT OF A CASE SUCCESSFULLY EXTIRPATED WITH DISCUSSION OF ITS SURGICAL TREATMENT

SHOYEI YAMAUCHI, M.D.

Honolulu

Cystadenoma of the pancreas is sufficiently rare to warrant reports of individual cases. Its surgical treatment has not as yet been standardized and consequently many erroneously treated cases are recorded in the surgical literature. The latter have been reviewed and analyzed to obtain definite information on what should or should not be done in the treatment of this condition.

REPORT OF CASE

History: Mrs. S. M., a Japanese housewife, aged 43 years, was first seen in October 1938 with a large mass in the upper abdomen. A native of Japan, she had lived in Hawaii for 34 years, enjoying good health. There was no history of upper abdominal trauma. On August 18, 1938, the writer removed from the right breast of her daughter, who was then 24 years old, an intracanalicular fibroadenoma. Otherwise her family history is of no interest, her two sisters, a brother, and her four remaining offspring being alive and well.

Two months before I saw the patient, she experienced a vague upper abdominal discomfort whereupon she discovered a large mass in this region. She stated that her appetite was good, bowel movements were regular and, except for urinary frequency of four years' duration, she had been well.

Examination: A well-nourished, plump, middle-aged female, rather dark, with an icteric sclerae. There was a diffuse, harsh, systolic murmur over the precordium and her blood pressure was 160/90. The upper abdomen was full and the presence of a large mass here was suggested by a protuberance in the left hypochondrium. A round mass, very firm, almost stony hard, was palpable just lateral to the midline, extending into the left renal fossa. It was not tender. The pulsation of the underlying aorta was transmitted through it. Fixed deep, it had limited movement from side to side but not up or down. Except for moderate-sized cystocele and rectocele, the pelvic organs were normal.

X-ray studies on Oct. 19, 1938, showed the presence of a spheroidal mass in the left hypochondrium. The lower margin was clearly defined. It formed an arc from the tip of the eleventh rib downward to the level of the upper margin of the fourth lumbar vertebra and swept upwards and medially towards the base of the transverse process of the third lumbar vertebra where it was lost in the shadows of the vertebral bodies. The splenic flexure and the left side of the transverse colon were compressed laterally and downward. Medially the greater curvature of the stomach was compressed almost to the right lateral margin of the vertebral bodies. In a left lateral position the pyloric end of the stomach and the first portion of the duodenum were displaced forward. In a plain "KUB" plate the mass seemed superimposed over the left kidney and the spleen. Intravenous stereopyelograms showed the mass definitely anterior to the left kidney which appeared normal except for a slight enlargement. The psoas outlines in all these plates were clearly defined and there were six lumbar vertebrae.

Laboratory studies showed normal blood picture and urine. Blood sugar was normal and Wassermann was negative. Icterus index was elevated.

Marsupialization: With a provisional diagnosis of pancreatic cyst, the first operation was performed in October, 1938. Enormously dilated and distended pulsating, sausage-shaped tortuous blood vessels, about the gastrocolic omentum, presented a spectacular picture. A large bluish unilocular cyst about seven inches in diameter was seen displacing the stomach upward and to the right, and the colon and transverse colon downwards. It was fixed to the tissues below by a very wide base. The serosal surface was smooth without any adhesions. It contained a clear thick gelatinous material with a small amount of sulfur yellow granules at the bottom. The viscosity made this difficult to suck out. The wall seemed to be of fairly uniform thickness and no irregularities or growths could be made out by the palpating finger. A portion of the cyst wall was removed, the serosal edge sutured to the peritoneum, and the wound closed around the cyst opening.

The patient had an uneventful convalescence. The jaundice, which had intensified for the first three or four days, cleared completely in a week. At first the drainage was mixed with blood but for a month and a half there was mucilaginous discharge which gradually diminished in amount. Beginning on the ninth day postoperatively, a 1 per cent silver nitrate solution was instilled into the cyst cavity until on November 17, 1938, when only a small inverted cone-shaped fistulous tract, about 2½ inches long, running upward, backward and slightly to the left to a point 2½ cm. to the left of the upper margin of the second lumbar vertebra, was seen in a roentgenogram. The solution was injected at bi-weekly intervals for approximately two additional months until all drainage ceased and the drainage tube completely pushed out into the wound.

The cyst wall was about 3-4 mm. in thickness and lined by cuboidal and low columnar epithelium in places showing tendency to form epithelial tufts of higher columnar cells. The pathologist's diagnosis was adenocystoma of the pancreas.

Recurrence of Cyst: The patient was warned that such cysts frequently recur and that she should report for observation every three to six months. She gained weight and remained well without signs of recurrence until November 14, 1939, when firmness just above the drainage scar was noted. She was then asymptomatic. On June 23, 1940, a mass about the size of a lemon was noted just above and lateral to the drainage scar. It was spheroidal and fixed but not tender. On October 20, 1940, the mass had grown so that it extended an inch on either side of the drainage scar. On June 6, 1941, she returned with a larger cyst. It was still asymptomatic and not tender; blood pressure was 175/80. On December 2, 1941, the patient was re-admitted to the hospital.

The patient stated that since August, 1941, she has suffered digestive disturbances, at first vague, and gradually taking the nature of colic. For several weeks she had had epigastric pain, fullness and discomfort especially after meals and had to take soft food in small amounts; she was gradually turning yellow and had lost about 15 pounds. Examination revealed an early icterus especially noticeable around the conjunctiva and evidences of weight loss. Blood pressure was 160/90 and there was a systolic mur-

mur over the precordium. There was a large, fixed, very firm mass occupying the entire mid-epigastrium extending laterally for a distance of about two inches on either side of the operative scar lost above in the subcostal region and palpable about a finger's breadth below the umbilicus. It transmitted the impulse of the underlying aorta. No x-ray studies were done since the diagnosis was evident.

Laboratory studies showed no evidence of diabetes—urine negative for sugar and blood sugar 105 mgm. per 100 cc. of blood. The icterus index was 6.8. Van den Bergh direct reaction negative and indirect reaction 0.4. Non protein nitrogen and creatinine levels were normal. Stool contained bile.

Excision of Cyst: Avertin supplemented with gas, O₂ and ether. After excising the old scar, the adhesions were freed with much difficulty because of their densely fibrous and unyielding nature, taking approximately two hours to mobilize the cyst. The tumor was irregular in shape consisting of a large hard cyst to the right and softer smaller daughter cysts medially and to the left. The former was very tense and firm, almost of stony hardness. There was a very dense scar tissue running upward and toward the left posterior part of the cyst where it blended into the cyst wall between the large cyst and four or five small cysts—probably the remains of the original cyst. There was a large vein about 1 cm. in diameter running from left to right directly over the cyst. A tongue of yellow pancreatic tissue about two inches long was firmly adherent to the right lower wall of the cyst. The left margin of the cyst was also firmly united to the cyst wall—particularly from one to five o'clock. The transverse mesocolon had thinned to such an extent, especially toward the midline that a large opening was created when it was finally freed from the cyst. The entire posterior wall of the cyst and about an inch all around anteriorly was densely adherent to the pancreas, vessels and other structures lying posteriorly, making dissection difficult. Three or four cysts were emptied to reduce the size of the mass to make dissection less hazardous. Where the cyst wall was sufficiently thick to permit subserous dissection, this was done. This was particularly helpful in freeing the large cyst from the pancreatic tissue. Vessels were transfixed and ligated before division. Adhesions were doubly ligated using small blunt aneurysm needles which were extensively used throughout the operation. Sharp needles for transfixing were used only where the aneurysm needles could not be used, particularly when the vessels ligated were too firmly adherent to the cyst wall. Bleeding of the pancreatic tissue, particularly at the left upper margin (continuous oozing in nature) was controlled easily by packing gauze into the fissured area and applying gentle pressure. Profuse bleeding was encountered twice, once when the artery going to the lower border of the pancreas was torn by a transfixing suture needle at the lower left side of the cyst and again when attempt was made to free the transverse mesocolon from the lower right margin of the cyst. In both instances bleeding was controlled by compressing the bleeder with the fingers, and then, after packing with gauze and clearing the field of blood, applying ligatures. The remainder of the dissection was not difficult. Traction on the partially collapsed cyst facilitated the dissection. When the cyst was finally removed there remained a large raw area three to four inches in diameter. Pancreatic tissue could not be palpated in this area but the tail portion was palpable higher up and to the left. The splenic artery was accidentally punctured and had to be ligated.

The defect in the transverse mesocolon was closed and a cigarette drain inserted down to the raw area through the gastrocolic omentum which was sewed around the drain. The abdominal wall was closed around the drain in layers reinforced by the use of silver wire retention sutures. Transfusion of 500 cc. of citrated blood was

repeated twice during the operation and the patient was returned to her room in fair condition. Blood pressure 102/68, pulse 120 and respiration 25.

The postoperative course was comparatively uneventful. Except for the elevation of temperature to 102° and pulse to 130 for the first three days, the patient was comfortable. The drainage was blood-tinged for the first twenty-four hours. On the third day the dressing was dry but a small amount of mucoid material was seen around the drain. Dressings were changed daily to observe the nature of drainage. The drainage which had become moderately profuse and purulent from the fifth to the eighth days, gradually decreased in amount and by the end of ten days had almost dried except for a small amount of gelatinous sticky material around the drain. By the end of two weeks the cigarette drain was replaced with two small Dakins tubes and all black silk sutures and silver wire retention sutures were removed. With a small rubber tube in the wound about 2½ inches deep, still draining a small amount of the thick mucoid material, she was discharged on December 26, 1941. In three weeks the fistula completely closed. When last seen in January 1943, she was well asymptomatic and without sign of recurrence.

PATHOLOGIC REPORT

Gross Description: Nodular, cystic mass 9½ x 7.4 cm. It is a multilocular cyst with a smooth, glistening lining. Much of the contents was lost and replaced by cotton for fixation purposes, however, some of the cysts were still intact and filled with clear gelatinous material.

Microscopic Diagnosis: Sections from different portions of cyst wall show varying degrees of fibrosis. The wall is very vascular in places containing many venules. In many places the lining cells have disappeared and have been replaced by chronic fibrous granulation tissue showing perivascular chronic inflammatory infiltration. The lining consists mainly of single layer of cuboidal to low columnar cells.

Diagnosis: Multilocular pseudomucinous cystadenoma of pancreas.

DISCUSSION

Pancreatic cystadenomas are rarely encountered, occurring only in 58 of about 740 cysts of pancreas thus far recorded, an incidence of about 12.5%, approximately once in 16,000 necropsies and once in 64,000 hospital admissions.

Of the 58 cases of cystadenoma of pancreas, 29 were reported as benign, 5 borderline, and 24 definitely malignant—an incidence of malignancy approaching 50% when the borderline cases are placed in the latter category, as should be done when considering surgical intervention. In 5 instances the malignancy ensued in an apparently benign cystadenoma treated by marsupialization from a few months to several years previously.

Sound surgical judgment does not permit one to leave unablated such lesions, yet reference to an accompanying table shows that of the 48 cases surgically treated, only 28 were completely removed—22 cystadenomas, 3 cystadenocarcinomas and 3 borderline cases. Drainage, with or without partial excision, was done in 16 instances—5 benign cystadenomas, 1 borderline lesion, and 10

cystadenocarcinomas, in spite of the fact that in 11 instances, 5 each of benign and malignant and one borderline, one or more drainages had already been performed. Apparently about one-fifth of originally benign cystadenomas ended in malignant degeneration and about 42 per cent subjected to more than one drainage, at the end of which permanent cure still was doubtful since none of the cases were carefully followed up beyond more than one or two years, when recurrence, whether benign or malignant, usually becomes apparent.

	TOTAL NO. CASES	OPERATION		AUTOPSY	NO RECORD
		Excision	Drainage A & B		
Cystadenoma	29	22	5	0	2
Cystadeno- carcinoma	24	3	10	5	2
Borderline	5	3	1	0	0
Total	58	28	16	5	4

Extirpation was generally done when the growth was small, when it had a narrow pedicle, or when the base was arising from the tail. In a few instances large growths with broad bases were dissected out without much difficulty once the cleavage plain between the cyst wall and the pancreas was located. In a similar number of cases the tumor was removed after much difficulty, requiring the ligation of large vessels and dissection of dense fibrous adhesions. In two or three instances part of the cyst wall was left with the pancreas, after a subserous dissection of the cyst wall. In three, partial resection of the pancreas was done, two tail (Judd, Whipple) and one body (Finney). In three instances a large defect of the pancreatic substance was noted after removal of the cyst. In two of these, the head and tail were sutured. (Finney, Welch) and in one no such attempt was made (the writer's). Jane dissected an orange-sized growth down to the pedicle but divided the latter rather than ablating it for fear of injuring the pancreatic duct, only to drain a recurrent cyst a year later. A few surgeons attempted dissection but satisfied themselves with partial excision and drainage when difficulty was encountered only, to encounter subsequently carcinomatous degeneration (1/5 of the malignant cases). In the great majority of the 16 cases which were treated by drainage, the surgeons did not attempt removal because they were satisfied with marsupialization and accepted this method by choice in the treatment of adenomatous pancreatic cysts. In the writer's case the extirpation was done after marsupialization and cauterization with silver nitrate solution four years previously which made the dissection during the extirpation extremely difficult. The adhesions were dense and unyielding. The recurrent growth occupied the head and the body. If the extirpation had been done at the first operation, the dissection would have been less tedious and difficult.

Cystadenomatous growths, however large, either situated at the tail of the pancreas or having a narrow slender pedicle, or those still small—the size of a lemon or smaller—have usually been extirpated. Growths occupying the body or the head with broad bases have been considered by many surgeons irremovable. No doubt many of this latter class could have been extirpated though with difficulty and definite risk to life. The hazard seems, however, less real than actual. Comparatively few have died after extirpation, while many treated by drainage have undergone the risk of repeated surgery only to die of malignancy sometime later. Long duration and high mobility definitely favor extirpation rather than marsupialization. If this cannot be done in one stage, which is rare because these patients are usually a good risk to begin with or can be well prepared before the operation, then the growth should probably be removed ten to fourteen days after an initial drainage. This period is sufficiently long to build up a poor patient. Sufficient time should not be permitted to elapse for the growth to recur or dense adhesions to form.

Preferably at the time of operation, a frozen section of the wall of the cyst as close to the base as possible should be made to definitely clinch the diagnosis of cystadenoma of pancreas. If the growth is multilocular this may not be necessary, since such a cyst cannot be treated satisfactorily except by total extirpation; besides, such a cyst is almost always a cystadenoma. When it is largely a unilocular growth, however, the diagnosis may be difficult, especially if the contents tend to be more fluid than gelatinous, the usual nature of the content of a cystadenoma. Cases have been recorded in which the cyst was unilocular and contained a serous fluid but recurrence later showed either cystadenoma (Cullen) or a cystadenocarcinoma (Whipple) with a typical gelatinous content. Even multilocular cysts have been known to have no epithelial lining but had more sections been made especially from the more active part to the cyst—the base—epithelium probably would have been found. In the writer's case at the time of marsupialization the cyst was considered unilocular with a fairly thick base, probably pancreas. Subsequently following extirpation no pancreatic tissue remained. It seems therefore that more cysts probably were present at the base from the beginning. In reviewing other cases considered unilocular at the time when marsupialization was done, no particular mention of this fact is made. Fullness still remaining after complete closure of the fistulous tract indicates that in the thickened base smaller daughter cysts existed from which others subsequently developed.

Adenomatous cysts of pancreas are usually stony-hard since the pseudomucin is generally so tensely held in tight compartments with densely

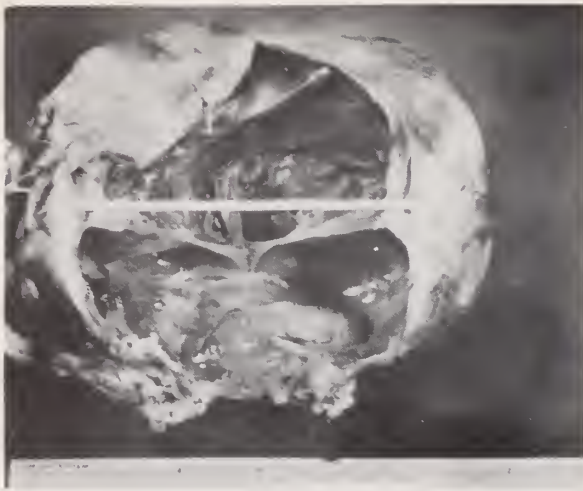


FIG. 1.—*Pancreatic Cyst.* Pseudomucin is shown in a locule at the base.

fibrous unyielding walls, hence the large cysts are frequently devoid of epithelium. As shown in the photomicrographs small cysts usually contain the more active columnar epithelial cells with basal nucleus and in these pseudomucin is found in a purer state. Seven of the outright cystadenocarcinomas were described as "papillary" and two borderline cases as such—a fact of importance at the operating table in determining the question of malignancy.

In the actual operative technique the writer has found the liberal use of a small ligature carrier and transfixion sutures rather than the free use of clamps useful in preventing hemorrhage. Whenever necessary several surfaces of the cyst wall can be peeled off by sharp dissections and left on the pancreatic tissue rather than the vice versa. Should this be difficult, incision can be made into the pancreatic tissues, bleeding from which can be easily controlled by carefully placed transfixion sutures. Fear of subsequent acute pancreatitis or pancreatic necrosis should not deter one from re-

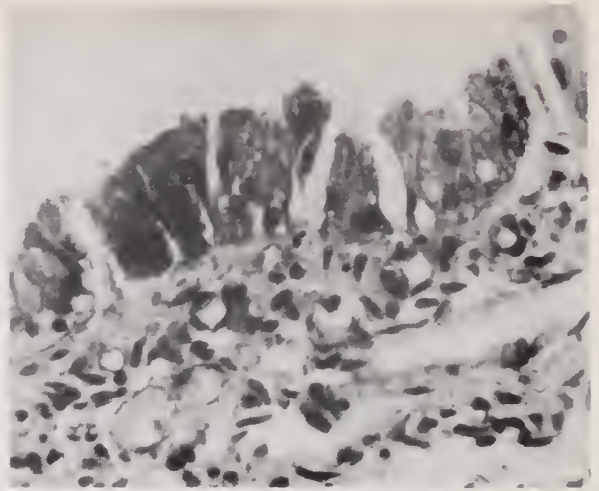


FIG. 2.—Photomicrograph of epithelial lining of the wall of a small locule near the base of a pancreatic cyst.

moving such neoplasms, for these hazards are less real than actual, when the enucleation is carefully done. Transfusions of citrated blood can be given up to 1 or 2 liters when necessary and even if massive bleedings occur two or three times during the operation the surgeon need not fear shock from hemorrhage.

CONCLUSIONS

1. A pseudomucinous cystadenoma of pancreas recurring within four years after marsupialization, successfully treated by total extirpation is described.
2. Fifty-eight instances of pancreatic cystadenomas, benign and malignant, recorded or referred to in the literature are reviewed.
3. Incidence of malignancy in these tumors approaches 50 per cent.
4. Nothing short of complete extirpation is a satisfactory surgical procedure unless there is too much risk to life. In the latter instance a two-stage operation is indicated.

45 N. Vineyard St.

Heart Disease in Hawaii

REVIEW OF 160 CONSECUTIVE CARDIAC CASES SEEN IN A GENERAL MEDICAL CLINIC
IN HONOLULU

ALFRED S. HARTWELL, M.D.

and

JOSEPH W. LAM, M.D.

Honolulu

The Palama Settlement Medical Clinic is a general medical out-patient clinic through which patients of all ages and both sexes pass. Although of the economically indigent, they nevertheless represent a cross section of the racial population of the City of Honolulu and the Territory of Hawaii. Because of our interest in cardiac diseases a cardiac clinic was started in June, 1942, and this report deals with its first twelve months. It is felt that cardiac disease, like other diseases, may differ in various parts of the world and that a report from Hawaii might therefore be of interest. The population of Honolulu is extremely varied and the patients represent many racial groups. The climate is sub-tropical, comparing somewhat with southern states as regards year-round temperature.

METHOD OF INVESTIGATION

The cardiac clinic is managed as follows: The patients are seen in a separate room. A history is obtained, through an interpreter, if necessary. Birth history and early life are inquired into, particularly regarding cyanosis at birth or afterward; nursing and early physical development are reviewed; and pertinent questions are asked regarding rheumatic fever, nosebleed, joint pains, chorea and vomiting spells. Symptoms related to cardiac disease, such as dyspnea or pain on exertion, cyanosis, cough, hemoptysis, or edema, are discussed. A physical examination, including blood pressure determination, auscultation of the heart in both sitting and recumbent positions, and finally fluoroscopy, usually with a swallow of barium to determine deviation of the esophagus, is done. When needed, electrocardiograms are taken at the Queen's Hospital, and appropriate blood and urine studies are done at the clinic. A Wassermann is done on every patient. X-rays are ordered when needed.

CASES WITHOUT HEART DISEASE

During the year, 160 cases were referred to the cardiac clinic. Sixty-five (40 per cent) of these were found not to have heart disease. In 14 of these, no murmurs could be heard. In the remain-

ing 51, the hearts appeared to be normal, with so-called "functional" (or perhaps better "physiological") murmurs. These were always systolic in time, usually in the apical or pulmonic area, and always varied considerably with change in position and respiration. These patients usually had no cardiac symptoms (except occasionally palpitation or tachycardia on exertion) and their hearts were of normal size and shape fluoroscopically. The location of these murmurs is shown in Table I.

TABLE I
Functional Murmurs
(All systolic)

Apical	30
Pulmonary	16
Apical and pulmonary.....	4
Apical and aortic.....	1
	—
	51

Two of these cases had definite histories of rheumatic fever, but their hearts were normal in size and shape and apparently their hearts had not been damaged. The importance of this group is great. It is just as important to rule out heart disease as to diagnose it. The psychological burden of suspected heart disease has been well emphasized by others.¹

RHEUMATIC HEART DISEASE

Of particular interest to us were the 28 cases of rheumatic heart disease. In years past it has been doubted by some that rheumatic fever occurs in Honolulu. However, recently acute rheumatic fever has been reported.² For this reason we inquired particularly into the childhood history of our patients. Also we determined whether or not they were born and had lived all their lives here. All but 4 of the 28 cases, or 86 per cent, were born in the Territory of Hawaii.

There was enlargement of the heart in all cases. Twenty-one of them presented undoubted evidence of mitral stenosis, with snapping first sound, late rumbling apical diastolic murmur and left auricu-

lar enlargement as shown by esophageal displacement in the right anterior oblique view.³ Three patients had mitral regurgitation alone, with loud

systolic apical murmurs and cardiac enlargement. In 5 patients the aortic valve was involved, either alone or with mitral disease as well (Table II).

TABLE II
Rheumatic Hearts

SEX	AGE	BIRTHPLACE	MURMURS	DIAGNOSIS	RACE	HISTORY
F	5	T.H.	Apical, systolic and diastolic	M R & S	French Canadian, Port., Polish	Suggestive
F	9	T.H.	Apical, systolic and diastolic	M R & S	Filipino	Suggestive
F	11	T.H.	Apical, systolic and diastolic	M R & S	Porto Rican	Suggestive
F	12	T.H.	Apical, systolic	M R	Hawaiian-Caucasian	None
M	14	T.H.	Apical, systolic and diastolic	M R & S	Japanese	Suggestive
F	14	T.H.	Apical, systolic and diastolic	M R & S	Japanese	None
M	14	T.H.	Apical, systolic and diastolic	A S & Reg.	Hawaiian-Caucasian	Suggestive
F	15	T.H.	Apical, systolic and diastolic	M R & S	Filipino	Definite
M	15	T.H.	Apical, systolic and diastolic, aortic diastolic	M R & S A R	Hawaiian-Japanese	Definite
F	15	T.H.	Apical, systolic	M R	Chinese	Suggestive
F	16	T.H.	Apical, systolic and diastolic	M R & S	Japanese	None
F	16	T.H.	Apical, systolic and diastolic, aortic diastolic	M R & S A R	Filipino	None
F	18	T.H.	Apical, systolic and diastolic	M R & S	Porto Rican	Definite
F	20	T.H.	Apical, systolic and diastolic	M R & S	Filipino	Definite
M	20	T.H.	Apical, systolic and diastolic, aortic diastolic	M R & S A R	Hawaiian-Samoan	Suggestive
F	22	T.H.	Apical, systolic and diastolic	M R & S	Porto Rican	Suggestive
F	28	T.H.	Apical, systolic and diastolic	M R & S	Hawaiian	Definite
F	29	T.H.	Apical, systolic and diastolic	M R & S A R	Chinese-Hawaiian and German	Suggestive
M	32	T.H.	Apical, systolic and diastolic	M R & S	Porto Rican	Suggestive
M	33	T.H.	Apical, systolic and diastolic	M R & S	Hawaiian	None
M	36	P.I.	Apical, systolic and diastolic	M R & S	Filipino	None
F	37	T.H.	Apical, systolic and diastolic	M R & S	Hawaiian	None
F	43	Japan	Apical, systolic and diastolic	M R & S	Japanese	None
M	44	T.H.	Apical, systolic and diastolic	M R & S	Portuguese	Suggestive
F	45	T.H.	Apical, systolic and diastolic	M R & S	Porto Rican and Irish	Suggestive
F	45	Japan	Apical, systolic and diastolic, aortic diastolic	M R & S A R	Japanese	None
M	51	T.H.	Apical, systolic and diastolic	M R & S	Porto Rican	None
F	52	Japan	Apical, systolic and diastolic	M R & S	Japanese	None

One patient with mitral stenosis had an attack of paroxysmal tachycardia lasting twenty-four hours. He rapidly went into congestive failure, but with hospitalization the paroxysm stopped and he subsequently did well on a restricted regime. It may be of interest to note that 16 of the patients gave a history suggestive of rheumatic fever in the past: i.e., joint pains with swelling and fever, frequent nosebleed or chorea. Two patients said they spent several weeks in bed due to "heart trouble" when children. In only 5 of the 28 cases was there irrefutable history of severe recurrent joint pains. It is our impression that severe recurrent attacks

of rheumatic fever are unusual in the Territory, but that less severe attacks with resulting crippling valvular disease most certainly do occur. The profession here would do well to recognize this and suspect rheumatic fever in any undiagnosed fever in childhood. Appropriate studies, including electrocardiography for evidence of auriculo-ventricular block, may reveal the correct diagnosis.

CONGENITAL HEART DISEASE

Sixteen patients had congenital defects of the cardiovascular system. As pointed out by many,⁴

the correct diagnosis of congenital defects is often extremely difficult and at times it is impossible to be sure of all the lesions which may be present. Multiple defects which cannot be ascertained during life may occur. There are certain lesions, however, which one may diagnose with comparative assurance. In the acyanotic group, interventricular septal defects, patent ductus arteriosus and coarctation of the aorta can be diagnosed with considerable accuracy.

Two of our patients were diagnosed as having interventricular septal defect; 5, patency of the ductus; and 1, a boy of ten, coarctation of the aorta. He had a blood pressure of 180/100 in the right arm, 180/120 in the left arm, absent dorsalis pedis and posterior tibial arterial pulse, palpable intercostal pulsations, and normal urine. Notching of the under edge of the ribs was not apparent by x-ray but he is still quite young and this may

TABLE III
Congenital Heart Disease

SEX	AGE	HISTORY	RACE	MURMUR	CYANOSIS	REMARKS	DIAGNOSIS
F	12	Since birth	Filipino ^a	Pulm. syst.	None	Autopsy performed. Case to be reported*	Patent ductus arteriosus, aneur. pulm. art.
F	15	None	Filipino	Pulm. syst. roaring	None	L. vent. enlarged	Pat. duct. art.
M	8	Since birth	Filipino-Portuguese	Pulm. syst. and diast.	None	Conus prominent	Pat. duct. art.
M	14	Since birth	Japanese	Pulm. syst., thrill	None	L. vent. enlarged	Pat. duct. art.
F	12	Since birth	Chinese	Pulm. roaring, contin.	None	L. vent. enlarged	Pat. duct. art.
F	4	Since birth	Filipino-Porto Rican	Pulm. syst. thrill	None	R. vent. enlarged—flu	Pulm. sten.
F	8	Since birth	Hawaiian-Japanese	Pulm. and apical syst.	None	R. vent. enlarged—flu	Pulm. sten.
M	10	Since birth	Caucasian	Pulm. syst. with thrill	None	Conus prominent	Pulm. sten.
M	11	Since birth	Portuguese	Aortic, syst. and diast.	None	Absent dorsalis pedis; intercostal pulsations palpable	Coarctation of aorta
F	5	Since birth	Spanish-Porto Rican	Aortic syst. loud	None	L. vent. large. ECG—marked L. axis deviation	Aort. sten.
F	6	Since birth	Hawaiian	Aortic syst.	None	Knob small; ECG—I. V. block	Aort. sten.
F	11	Since birth	Caucasian-Portuguese	4th L. interspace, roaring syst.	None	Normal shape	I. V. septal defect
M	15	Since birth	Filipino	3rd L. interspace, roaring syst.	None	Normal shape	I. V. septal defect
M	15	Since birth	Chinese-Filipino	Pulm. syst., 4th L. intersp. syst. *	Present	R. vent. enlarged. ECG—R. axis deviation	Tetralogy of Fallot
M	28	Since birth	Hawaiian-Chinese	Pulm. syst., 3rd and 4th intersp. syst.	Present	Vents. enlarged; aorta to right	Tetralogy of Fallot
F	12	Since birth	Japanese	Pulm. diast.	Present	R. vent. enlarged	Tetralogy of Fallot

* Am. Heart J, 26: 692 (Nov.) 1943.

appear later. Three patients had a loud pulmonary systolic murmur which most likely represented pulmonary stenosis, but may be functional. The murmur was accompanied by a thrill in each case. The hearts of these 3 cases were not enlarged. Two patients, aged 5 and 6, had aortic stenosis. They had had "heart trouble" since birth. One of these patients, the 5 year old girl, had the loudest systolic murmur we had ever heard. It was transmitted along the peripheral vessels as far as the wrist. Her blood pressure was 90/70 and she showed an enlarged left ventricle by fluoroscopy and roentgenogram.

Three of the congenital cases have been cyanotic since birth. Each of these has Tetralogy of Fallot (interventricular septal defect, pulmonary stenosis, hypertrophy of right ventricle and dextraposition of the aorta), so far as we can determine. This is

not surprising, since it is true of at least 75 per cent of cyanotic congenital cardiacs who survive beyond the first few weeks of life (Table III).

MISCELLANEOUS CASES

The remaining 51 patients, mostly elderly, were diagnosed as follows: hypertensive heart disease, 10; arteriosclerotic coronary heart disease, 23; hypertension and arteriosclerotic heart disease, 8; syphilitic aortitis, 6; aortic aneurysm, 2; thyrocardiacs, 2. The fluoroscopic cardiovascular shadow was abnormal in all cases but 9. Three patients were not fluoroscoped. Three patients with hypertension and three with arteriosclerotic heart disease had normal hearts fluoroscopically. The other cases presented definite abnormalities, either cardiac enlargement or a tortuous aorta. Of the 2 cases of aneurysm of the aorta, one had a positive Wassermann.

TABLE IV
Remaining Cardiac Cases

Hypertensive heart disease.....	10
Arteriosclerotic heart disease.....	23
Hypertensive and arteriosclerotic heart disease.....	8
Syphilitic aortitis.....	6
Aortic aneurysm.....	2
Thyrocardiacs.....	10

Both thyrocardiacs had been observed more than eight years. One patient had a thyroidectomy shortly after the heart clinic was started. Since then her heart has returned to normal size and her pulse has changed from a previous auricular fibrillation at a rate of 120 (despite large doses of digitalis in the past) to a regular rhythm of 78. The other thyrocardiac, a 40 year old Chinese woman, persistently refused surgical treatment. It is of some interest that only one patient, a Filipino, 44, gave a history consistent with a diagnosis of angina pectoris. Three patients came in with obvious congestive failure. One Japanese man aged 60, with hypertensive and arteriosclerotic heart disease, came in with edema, enlarged liver and moist rales at both bases. Under digitalis, rest at home and weekly mercupurin intravenously, he lost 41 pounds in a month. A similar case lost 28 pounds in one week. It is felt that frequent follow-up of these cardiac cases, to be sure they are maintaining adequate digitalization, and not gaining weight, is of definite benefit to them.

CONCLUSIONS

In conclusion we should like to emphasize that the proper evaluation of cardiac patients depends upon a careful history of events, starting at birth, physical examination with auscultation of the heart in various body positions and phases of respiration, and x-ray and fluoroscopy with, at times, electrocardiographic help. Some cases, particularly

congenital lesions, are extremely difficult to diagnose with certainty. We feel that the number of rheumatic heart cases is worthy of mention—17.5 per cent of our patients had definite rheumatic valvular disease.

The two points we wish to stress as a result of this study are:

1. Cardiac patients will be diagnosed more accurately and can best be treated if handled in a separate special clinic.
2. Although this series of 160 patients is as yet too small to compare with similar series on the mainland, nevertheless it is obvious that, even here in the Paradise of the Paradise, rheumatic fever takes its toll of crippling heart disease.

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EDITORIALS

WAS IT MURDER?

Was it murder? That's a reasonable question to ask in regard to violent or professionally unattended deaths. The answer to it is not always easy, and unless the answerer is a properly trained specialist in criminologic pathology, it is not very likely to be correct.

In Honolulu the man who answers that question officially is a layman, elected by popular vote to the office of Sheriff and Coroner; he may delegate his authority to a subordinate, and that subordinate may be assisted in any case if he so desires by a practitioner of one of the healing arts. Alan R. Moritz, of the Department of Legal Medicine of the Harvard University Medical School, says¹ that "it is likely that murder can be committed with impunity in many communities of the United States if the murderer takes care not to leave external evidence of violence." *Honolulu is one of those communities!*

If anyone doubts this, let him look over the records. Let him consider the case of a body removed from a partially burned house here and "signed out" as dead from burning, until the undertaker some hours later called attention to the fact that the man's skull had been shattered—not, presumably, by the fire! Let him consider the case of a young man found dead, his body unmarked except by innumerable decubitus suggesting prolonged immobility preceding actual death, who was blithely "signed out" as "suicide due to taking amytal". When the relatives pointed out that the police had found no empty container and no evidence of amytal or any other poison in the stomach, and that the diagnosis of suicide would void the man's life insurance and prevent his burial in a Catholic cemetery, the death certificate was removed from the files and a new one, reading "death from unknown cause", was inserted.

¹ Moritz, A. R.: The Medico-Legal Necropsy, Am. J. Clin. Path. 13: 123 (March) 1943.

The way to prevent such mistakes is obvious; it has been clearly shown through many years of experience in large mainland communities, New York City and Boston, for example, and even Chicago, that the ideal procedure is to vest the authority for deciding whether a violent or unattended death is natural or due to suicide or homicide, not in a lay coroner assisted by any physician or even by any pathologist, but in a *pathologist specially trained in forensic medicine and its allied subjects*, toxicology, ballistics, chemistry, and so on. This man must be attached, not to the office of some political appointee or elected coroner, but to the Police Department; he must be free, needless to say, of all possible sources of political pressure; and his must be a life tenure during good behavior.

The purpose of having such a highly trained man for such a position, according to Moritz, is threefold. It is necessary (1) "in order that murder shall not escape recognition; (2) in order to protect innocent persons against unjust accusations; and (3) in order that evidence pertaining to the identity of the victim, the identity of the criminal, and the time, place and circumstances of death shall be obtained." It seems needless to point out that no ordinary physician can possibly be competent to perform this type of work; indeed, no general pathologist, however well trained and capable, is fitted to undertake it. It requires a man thoroughly grounded in pathology and additionally trained in criminology, with experience, under suitable tutelage, in performing medicolegal autopsies.

Honolulu averages in the neighborhood of one violent or unattended death a day. The decision "was it murder?" must be made in every one of these. It is being made, as things now stand, by people who are not properly trained for the task. In the case of unattended, not obviously violent deaths, moreover, they are working under the

handicap of not even being able to perform an autopsy without obtaining the relatives' permission for it.

What is needed is a law requiring (1) that death certificates in *all unattended or violent deaths* be signed by a Medical Examiner who is (2) an *adequately trained specialist in forensic pathology* and who has (3) a *life tenure in office*, during good behavior. Nothing less than this will do. The Police Department wants it; the Hawaii Territorial Medical Association and the Honolulu County Medical Society want it; the Public Prosecutor and Coroner approve of it; and the community cannot help but profit materially by it. Let's see that it comes to pass!

POST WAR PLANNING

That a Holdover Legislative Committee has finally become a reality is unquestionably a forward step in public affairs, and the activity so far demonstrated by that committee gives promise of constructive legislation in the next session.

This Holdover Committee has taken as one of its earnest duties consideration of a program for post-war planning, aiming to develop, in order of their urgency, public works and projects analysed by representatives of all walks of community life whom they have called in as co-planners—planning to use accumulated public surpluses and assuring to labor a controlled but continuous flow of purposeful work when the pressure of war work is lessened or no longer exists.

With the building of government buildings, public utilities, roads, schools, playgrounds, etc., the problem of hospital facilities should be definitely added and *it should not come at the bottom of the list*.

Members of the Legislature, and the public, know little of the doctors' and the hospitals' daily

struggle with a capacity load of patients, of trying to find a bed for an acute case whose life may be in the balance. For over two years the doctors have been making themselves heard upon the shortage of hospital beds, particularly for maternity cases, but even they are not generally aware of the deplorable shortage of beds for the tuberculous, insane and feeble-minded patients.

The Chamber of Commerce Public Health Committee has undertaken a survey of the hospital bed situation, but this survey is limited to *Honolulu only* and to *general beds*, exclusive of tuberculosis, mental, etc. When this is completed, it will still be only a part of the picture.

The Holdover Committee as well as other officials and official agencies, have from time to time received requests for aid to provide more beds, but the requests are isolated, one pointing out the need for the tuberculous patient, another for the feeble-minded, yet another for maternity. It is time that someone or somebody with the power and/or the money would take a view of the *whole* picture, and that a master plan for hospitals be drawn up just as master plans for civic buildings and street layouts are being considered.

The HAWAII MEDICAL JOURNAL has undertaken to present the separate facets of this picture. Starting with last July's issue, it has outlined the general bed shortage and the tuberculosis situation. It has gathered its information from authentic sources and hopes to complete the picture in forthcoming issues. But the JOURNAL and the medical profession are helpless to do much more than point out the problem and lend support wherever it can be useful. The doctor's time, especially these days, is more than taken up with the care of the sick, and he must leave to others the providing of facilities properly to house those who need institutional care.



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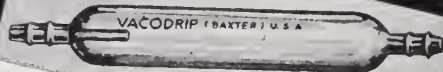
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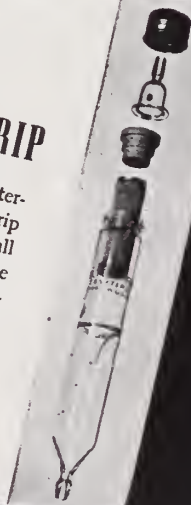
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PROGRESS IN INTERNAL MEDICINE

REACTIONS FOLLOWING THE READMINISTRATION OF THE SULFONAMIDE DRUGS WITH A REPORT OF TWO CASES

Much has been written on the toxicity of the sulfonamide drugs. Most of the literature to date concerns the toxic reactions that occur when the sulfonamide drugs are given to a patient for the first time. A few papers have been written on the reactions following their readministration, but as yet the exact nature of these is not understood.

Some of the reactions following readministration of the sulfonamide drugs are identical to those occurring after the initial therapy, but others are entirely different. The reactions may be severe, and if they occur in a patient who is not acutely ill they will make him so. Indeed, it is very dramatic to give a sulfonamide drug to a patient with some chronic infection that is not making him very sick and have him develop chills, a temperature of 102 degrees, vomiting, abdominal pain, prostration and a generalized rash in three or four hours. A few cases of reactions like these will make one think twice before again administering the sulfonamide drugs.

Most authors refer to the reactions following readministration as "acquired sensitivity" or "hypersensitivity." The exact nature of the reaction is not clear. Patch tests and passive transfer tests are generally reported as negative.^{1,2} Shaffer et al,³ however, report the passive transfer test positive in three cases. Eosinophilia is not the rule. Most always at least seven days are required after the initial therapy for symptoms to develop on readministration. Drug fever occurring during the initial course of therapy rarely develops before seven days also. Reactions have been reported to occur on readministration two years after the initial therapy.² Some patients develop a sensitivity to only one sulfonamide and will not react on readministration of other sulfonamides, while other patients develop a sensitivity to all the sulfonamides at once.

If a patient becomes sensitive he cannot be desensitized by repeated small doses but will always react. Nelson observed six separate reactions on readministration of different sulfonamides to his patient over a period of seventy-six days. The administration of soda-bicarbonate in conjunction with the sulfonamides does not prevent reactions on readministration. The presence of sulfonamide crystals in the urine and kidney damage bear no

relation to the development of reactions on readministration.

Lyons¹ gave 53 patients a second course of therapy and found that 36% developed a reaction on readministration. Seventeen of his patients were afebrile controls and the incidence of reaction in this group was 47%. According to Lyons the reactions usually occurred on the first day of the second course and were characterized by a sudden rise in temperature sometimes as high as 106 F. There were profound prostration, weakness and exhaustion. Nausea, vomiting, delirium, stupor and conjunctivitis occasionally accompanied the febrile reactions. Lyons gave 10 patients who had a reaction on readministration a third course of therapy and 8 of these developed reactions.

Shaffer et al³ reported four cases of sensitivity that developed during the treatment of pyogenic dermatitis with sulfathiazole ointment. They studied their cases extensively from an allergic standpoint and found that the patch test was negative but the passive transfer test was positive. The original sensitizing dose of sulfathiazole ointment usually did not cause a dermatitis or any symptoms but their patients reacted to readministration of sulfathiazole ointment locally or to oral therapy. They noted that the eruption did not present the usual picture of dermatitis venenata but tended to manifest itself as an exacerbation of the eruption for which the patient had been treated. Subsequent oral medication precipitated a dermatitis similar to the condition for which the patient was originally treated. It was worst at the sites where sulfathiazole ointment was applied locally. Their patients also developed a high temperature, abdominal pain, prostration and conjunctivitis on readministration orally. They feel that pyogenic sensitivity, especially to the staphylococcus, plays a major role as an underlying factor in inducing sensitivity of this type. They suggest that sulfathiazole on readministration may cause the liberation of an excessive amount of bacterial toxins to which the patient is sensitive.

Case Reports

Case 1. Y. T., a thirteen year old girl who presented herself to Puumene Hospital Dispensary on 8/11/43 complaining of pain in her left ear. Her temperature at this time was 99.6°. The ear drum and canal were dull and injected but there was no bulging of the drum. One per cent phenol in glycerine was instilled in her ear and she was given ephedrine nose drops and 2

grams of sulfathiazole daily for two days. She weighed 80 pounds. The pain continued and the temperature remained 99.8° F. At the end of two days the ear drum was bulging and a myringotomy was done. Thick creamy pus was obtained. The temperature dropped to normal on 8/15/43 but on 8/16/43 had risen to 101.2° F. At this time a white blood count was 9,100 with 83% neutrophils, 14% lymphocytes and 3% monocytes. X-rays of the mastoids showed clouding of the left mastoid cells. The sulfathiazole was continued 2 grams daily until 8/23/43. The temperature gradually abated and was normal by 8/22/43. The purulent discharge from the ear had been profuse since myringotomy until 8/21/43 when it ceased. The temperature then dropped to normal and all medication was stopped.

On 8/26/43 the profuse purulent discharge again appeared and for this reason sulfathiazole was again given. One gram was given at 10 A.M. and one gram at 2 P.M. By 3 P.M. the patient complained of chills and headache. The temperature at this time was 102.4° F., which was the first time it had been above normal for four days. The patient vomited and complained of generalized pains. She perspired profusely and refused to eat. The sulfathiazole was discontinued. The temperature dropped to 100.8° F. by 10 P.M. and was normal again next day. The purulent discharge gradually lessened and finally stopped. The patient was discharged on 9/4/43 free of symptoms and discharge from the ear, and has remained so.

Case 2. C. S., a 17 year old girl who was first seen in the dispensary in February, 1942, with a laceration over the lower anterior portion of the right leg. This laceration was sutured but became secondarily infected and had to heal by second intention. Sulfathiazole ointment, 5%, was used locally to combat the infection. Healing did not take place. A chronic ulcer developed which became red and weepy. It measured 4 inches by 2 inches on 5/11/42. The patient had also developed a generalized eczematous rash with severe itching. Areas behind the right ear and on the forearm were wet and oozing. The patient was admitted to the hospital on 5/11/42 and hot saline packs applied to the leg ulcer. X-ray treatments were given to the ulcer. The ulcer gradually improved and the patient was discharged on 5/23/42. The ulcer continued to heal and has not returned.

The patient was well until 7/10/43 when she developed an infection of her right great toe from an ingrown toe nail. It was necessary to remove the toe nail leaving a necrotic infected base. This was treated with sulfathiazole ointment, 5%, but healing did not take place. Finally, it was treated with sulfathiazole powder whereupon it became much worse. The entire toe was swollen and red. It was weepy and very painful. Sedation was necessary for sleep. At this time the possibility of a sensitivity to sulfathiazole was considered. On 7/30/43 at the time that the toe was at its worst, the patient developed what appeared to be an infection about the outer canthus of the right eye. This was given local hot applications for 24 hours but became much worse. There was much swelling involving both eyelids and the cheek. The eye was closed by the swelling. It was decided to give a sulfa drug to the patient to prevent a possible spread of an infection into her blood stream. Realizing that the patient was probably sensitive to sulfathiazole, sulfadiazine, 1.0 gm., was given at 10 A.M. and 2 P.M. By 3:30 P.M. the patient had developed a generalized erythematous macular rash with severe itching and general malaise. The sulfadiazine was discontinued. It was necessary to give adrenalin, 5 minims, and codeine sulphate, grains one half, at six to eight hour intervals for five days to control the severe itching and discomfort. The adrenalin was very effective. Torantil was given

with no apparent benefit. The temperature did not rise above normal and the swelling gradually subsided with ice compresses. The toe became more swollen and painful but improved after one week.

Summary

In summary, Case 1 had an otitis media with some involvement of the mastoid cells. A myringotomy was done. She received a relatively small dose of sulfathiazole for twelve days with relief of her pain, temperature and purulent discharge. After three days the purulent discharge recurred and sulfathiazole was readministered. After ingestion of 2 grams the patient had a febrile reaction with vomiting and prostration. Discontinuance of the drug was followed by a return to normal of the temperature and a disappearance of other symptoms.

Case 2 had an infected laceration which was treated with sulfathiazole ointment. A sensitivity to the sulfathiazole developed but was not recognized. This sensitivity was evident both in the chronic ulcer and in the generalized eczematous dermatitis. When therapy was changed to other non-specific measures recovery occurred. Seventeen months later this patient again received sulfathiazole ointment and powder in the local treatment of an infected toe. A local reaction occurred and sensitivity to sulfathiazole was suspected. She was then given sulfadiazine orally and immediately developed a generalized erythematous macular rash with severe itching. This itching was relieved only by adrenalin.

Comment

From the above two cases, as well as the many other cases referred to in the literature, it is evident that more caution must be exercised in prescribing the sulfonamide drugs. They are probably our most valuable therapeutic agents and we should not abuse them. Now after several years of use a clear pattern of their actions and reactions is developing, and it is the duty of all those who prescribe them to know this pattern. A thorough knowledge of the potential toxicity of the sulfonamide drugs during the initial course of therapy as well as in subsequent courses of therapy must be known and constantly kept in mind. The indications for the administration of the sulfonamide drugs are known by all and there is hardly any excuse for the "hit or miss" type of therapy that was used during the early days of sulfonamide therapy.

One must always bear in mind that drug reaction either in the initial course of therapy or on readministration may in itself markedly impair the patient's general condition and may lead to clinically demonstrable inflammatory lesions similar to the lesions found in infectious conditions.⁴

There may be leucocytosis and an increased sedimentation rate. Chills and fever are usually present within three or four hours after readministration but may be delayed 12 to 24 hours. Whenever sulfonamide therapy does not lower the temperature within three or four days, drug fever should be taken into consideration. Whenever the temperature rises after a transitory fall without an infectious complication or when fever persists without evident cause the drug should be stopped or replaced by another sulfonamide.

After a diagnosis is made it is important in sulfonamide therapy to give the proper dosage for the proper length of time if the therapy is to be effective. Personally, I usually give slightly smaller doses than have been recommended in the literature and seem to get good results. This is especially so in chronic infections where therapy is to be continued longer than one week. In severe infections as pneumonia, meningitis and bacteremia, however, it is necessary to give an initial large dose and then give maintenance doses at 4 to 6 hour intervals until the temperature has been normal for 48 hours. If this is done it will not be necessary to readminister the sulfonamide drugs often and thus the incidence of reactions will be lowered.

Recently I treated an adult patient for acute sore throat and with fever. The tonsils had a patchy white exudate on them and the pillars were very red. Direct smear and cultures were negative for diphtheria and streptococcus. I prescribed 1.0 gram of sulfathiazole every 8 hours for 2 days, and an aspirin gargle. The patient was allowed to go home with the instruction that she was to return in two days, or in one day if worse. On the second day the patient's son reported to me that his mother had been taken acutely ill in the evening of the day I had treated her for sore throat. She had been taken to the nearest hospital by ambulance as an emergency during black-out hours, but the doctors were unable to find out what was wrong with her. On admission she had a high temperature and acute abdominal pain with vomiting. For personal reasons she would not tell the doctors that she had been treated that day by someone else. Later I saw the patient and she said the doctors had thought she had either renal or gall bladder colic but x-rays had failed to disclose any trouble. She had made a rapid recovery and had gone home after the studies were complete. She asked me what I thought might have been wrong with her. I was able to tell her because six months previously

I had treated her for acute pyelitis with sulfathiazole. She had recovered from the pyelitis after five days' treatment with sulfathiazole without any toxic symptoms. Obviously she had become sensitive to sulfathiazole and on readministration had become acutely ill.

This case illustrates what can happen and shows the importance of always thinking of drug reaction in diagnosing acutely ill patients. It also shows the danger of dispensing the sulfonamide drugs for home use. Patients are apt to save medicines that are left over and use them at some time in the future when they have a similar illness before seeing their doctor. If a patient develops a reaction before seeing the doctor he will present a major diagnostic problem which will interfere with the proper treatment and recovery of the patient.

Finally, let me say that this paper is not a plea to use less of the sulfonamide drugs but is a plea to all, myself included, to use them more intelligently.

Conclusions

1. The sulfonamide drugs produce a sensitivity in a large percentage of patients, reported on good authority to be as high as 36%.
2. Readministration of the sulfonamide drugs either orally or locally to sensitive patients produces an immediate severe reaction which in itself endangers life and necessitates stoppage of the drug.
3. The nature of the reaction is not understood.
4. Discontinuance of the drug is followed by a quick disappearance of the symptoms of reaction.

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—WILLIAM B. PATTERSON, M.D.
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RECENT ADVANCES IN SURGERY

PILONIDAL CYSTS

During the past two years there has been a renaissance of interest in pilonidal sinuses, or cysts, due primarily to the increased incidence of the disease in the Army. Though they have been known for nearly a century, there remains considerable debate regarding the origin of these curious lesions, and wide variations in the method of treatment have obtained until recently. The condition has usually been considered a minor one, and in fact the treatment of it has been relegated to the younger members of hospital staffs who have practiced wide excision and open packing according to time-honored custom. Actually, the time of complete disability in civilians treated by this method has not been long, though the prolonged period of healing has been a source of annoyance to both the patient and the surgeon. In military hospitals, on the other hand, this lesion has become a major surgical problem, for the long recuperation consequent upon allowing the wound to heal by granulation requires hospitalization, inasmuch as a soldier is not returned to duty until his wound is completely healed. Primary closure has become the method of choice, and there have been several new procedures reported recently. The purpose of this paper is to review the subject briefly and to call attention to the newer types of closure.

Pilonidal cyst, or sinus, is also called sacrococcygeal cyst, sinus, dermoid, fistula, or infundibulum; post-anal dermoid, or dimple; and other less used terms. The name is derived from the Latin words pilus, meaning hair, and nidus, meaning nest; this is actually a misnomer, for hair is present in only 50 per cent of cases or less. It applies to a cyst or sinus located posterior to the sacrum and coccyx, with or without single or multiple sinuses communicating with the skin.

Etiology

It is commonly accepted that the cysts are of congenital origin, though the exact nature of their development is unsettled. There are two plausible theories: one, that it is due to an infolding of the ectodermal layer,¹ and the other, that it is derived, as an epithelial rest, from the caudal portion of the embryonal medullary canal.² Kooistra³ found evidence to support both theories. Heredity is said to play little if any part.

Incidence

Pilonidal sinuses are more common than is gen-

erally supposed. Kooistra³ reports an incidence of one in every nine hundred forty admissions to the University Hospital at Ann Arbor, Michigan. Pickett and Beatty⁴ and Weeks and Young⁵ estimate the incidence in the Army to be 0.1 per cent. Woldenberg and Sharpe⁶ state that "soldiers are pouring into army hospitals" because of them, and Brezin⁷ found that pilonidal sinuses constituted 33 per cent of all admissions to the septic surgical service of the station hospital at Fort Bragg after the first maneuvers in that area. The true incidence is probably higher than the above statistics, because some of them never become infected and remain undiscovered. It is predominantly a disease of young males in the third decade, the ratio of males to females being approximately 3:1. It is almost limited to the Caucasian race; a few cases have been encountered in Negroes, but the lesion has never been reported in the American Indian nor in the Oriental races.³ Judd²³ has never observed the condition in a pure Hawaiian. Infection, either acute or chronic, is usually the reason for discovery of the lesion and the factors contributing to its inception are said to be repeated trauma, sweating and chafing of clothing, and the large number of bacteria usually present in the intergluteal area. In addition, the growth of incarcerated hair may predispose to infection.

The diagnosis is relatively simple. In the uninfected cases there is commonly a telltale dimple or actual sinus opening in the midline over the sacral area. If infection has supervened, the signs of inflammation will be present, and there may be accessory sinus exits in the midline or laterally. The differential diagnosis includes anal fistula; tuberculous, luetic or other infections of the sacrum or coccyx; lipoma; sebaceous cyst; actinomycosis; and anthrax. Tumors are less common.

Treatment

The primary objective in the treatment of this lesion is to cure the patient in as short a time as possible. If acute inflammation or abscess is present, local measures to promote drainage are indicated. After this subsides, it is advisable to wait for two months or more before excising the lesion, though this has been inexpedient in the army, and excision has followed incision and drainage in from one to four weeks. It is worthwhile to mention that the injection of sclerosing solutions⁸ and radiation⁹ have been tried; however, these methods have not enjoyed wide acceptance. Radical excision of the lesion is the treatment of choice, and the

most popular operation in the past has been wide excision using either the scalpel or cautery, with open packing of the wound; healing occurred by granulation. In a large series collected by Kleckner¹⁰ the recurrence rates were 1.13 per cent for the open method and 23.2 per cent for primary closure. Several types of operation for primary closure have been described, usually with suture of the skin edges to the sacral fascia, and with pressure applied to the operative wound^{11,12,13,14}. Lahey¹⁵ used block dissection with interposition of pedicle flaps. More recently, DePrizio¹⁶ and Mac Fee¹⁷ have described methods of partial primary closure with good end results but requiring relatively long hospitalization. Kooistra,³ in a civilian hospital, reported an almost identical hospitalization time for the open and closed types and exactly the same recurrence rate, namely 21 per cent. Woldenberg and Sharpe⁶ employed the conventional primary closure on 100 cases with 98 cures and two recurrences; the average healing time was 14 days, and in the seven wounds which became infected the time was 23 days. Scott¹⁸ operated upon 94 cases and obtained primary healing in 84 per cent of cases with an average hospital stay of 24 days; there were 19 wound infections. Camp and Polites¹⁹ report 37 cases requiring an average of 45 days in the hospital. Weeks and Young⁵ have operated upon a series of 200 cases; primary closure was attempted in the last 77 and was possible in 63 of them, of which 50 per cent healed per primum. In the 137 cases treated by the open method there were 12 recurrences while there were only three recurrences in the primary closure group, or about one half as many. However, sufficient time has not elapsed to accept these figures as final. In an addendum they report an additional 90 cases treated with primary closure.

There is good reason to believe that an effort should always be made to effect primary closure, based on such results as quoted above, for it is really unnecessary surrender to pack the wound open and wait for it to granulate. Even in those cases in which the closure fails and the wound breaks down, the period of healing is shorter than if the open method had been employed. Concerning the three newer types of closure, absolute cure rates are not available for the obvious reason that sufficient time has not elapsed to exclude all recurrences. These operations will be presented briefly, but the reader will do well to consult the original articles for excellent illustrations.

Brezin⁷ has devised an operation in which the incision incorporates all of the sinus openings, but wherever possible the majority of it is transverse; he has found that the most usual and useful type is U-shaped. He points out that tension and maceration are most apt to occur in vertical midline incisions. If a single incision suffices, the edges are undercut; if the U-shaped type is used, the flap of

skin is carefully dissected off of the subcuticular tissues. The sinus tract is then meticulously dissected out with as little sacrifice of normal tissue as is possible. The wound is then closed in layers after the instillation of a codliver-oil-sulfathiazole mixture. The average healing time was 26 days in the first group of 30 cases, and in a subsequent series²⁰ it was reduced to 13.1 days. The edges of the skin flap tend to separate a little after the removal of sutures, but this did not materially delay healing. The author has observed this type of closure in two cases with good results, though in one a slough occurred where the flap crossed the midline. This is not surprising, however, for the blood supply at this point is poor during the early postoperative period and the flap is in reality a pedicle graft if it is of any size. In another case in which a single transverse incision was used, the wound healed per primum and without infection. During the excision, Brezin frequently uses a probe to delineate the extent of the sinus; he depends primarily, however, upon clinical recognition of the pathologic tissue to insure complete removal. This procedure has proven of value in his hands, though it is prone to require a longer operating time than those to be discussed.

McCutcheon² reports a method which gave fairly good results but with a somewhat longer healing time. His incision consists of a transverse component at either end of which there are two Y-shaped extensions; the whole resembles two Ys joined at their bases: >—<. The lateral, superior, and inferior flaps are dissected free, thus giving excellent exposure. The sinus is excised intact with very little normal tissue, thus creating as small a dead space as possible. After profuse irrigation, and instillation of sulfanilamide, the wound is closed with a single row of mattress sutures which include a bite in the sacral fascia. No attempt is made to approximate the skin edges closely, and stab wounds are made in all of the flaps, for drainage. He states that he expects infection to occur in many of his cases, and that it does; however, the loose approximation of the wound edges plus the stab wounds provides adequate drainage. He has encountered no tendency of the flaps to "float". The average healing time was 38 days in 39 cases. Two other flap type of incisions were tried, both T-shaped, but were abandoned.

Shute and his associates²³ employ the usual vertical elliptical incision, and they remove the sinus en bloc down to the sacral and gluteal fascia. The refinement in technique which they have introduced is directed towards obliterating dead space and counteracting the tendency of the gluteal muscles to spread the wound. The gluteal fascia and underlying muscle is incised on either side of the sacrum in the same plane as the skin incisions. The medial fibromuscular flaps are then sutured together in the midline over the sacrum, following

which the lateral flaps are also approximated. By this maneuver, the dead space in the depths of the wounds is obliterated, and the pull of the glutei is said to be neutralized. Closure can be accomplished without tension, and the wound edges fall together readily. His results justify the procedure; in a series of 59 cases, 48 healed per primum in an average of eight days; eight of the wounds became infected but after being partially opened they healed in a mean of 22 days. Three wounds broke down accidentally, as by falling out of bed, but healed well in 15 days. This report offers a good method of closure which is really quite simple, and of the three methods presented appears to be the method of choice.

Irrespective of whatever type of repair is used there are several very important factors contributing to the success of the operation. Absolute hemostasis is imperative, both to prevent the formation of dead space and to prevent infection. For this reason, spinal anesthesia is desirable inasmuch as just before closure, the patient is able to cough or strain, thus demonstrating any dormant bleeders. Two other cardinal points have already been mentioned, namely closure without tension and obliteration of dead space. It would appear from the results quoted above that these are more readily attained in the newer types of closure. The use of one of the sulfonamides locally is strongly advised; as a matter of fact, it is probable that this makes possible primary closure in a far higher percentage of cases than formerly. Scott¹⁸ used buffered sulfanilamide in preference to the plain drug and to sulfathiazole. On the contrary, Shute²² feels that the buffered drug caused the collection of more serum in the wounds than did the unadulterated drug. Sulfadiazine might well be used, due to its wider range of specificity and to the fact that it appears to cause less difficulty in wounds than any other of the sulfonamide compounds.

The choice of suture material is important, and absorbable sutures are to be condemned. Dumphy¹² and Kooistra³ advise the use of silk, and Shute²² the use of alloy steel wire for the buried sutures; it is probable that cotton would be at least as good as either of the above and better than silk, for it is well known that it is well tolerated in infected wounds.

The use of methylene blue either at operation or the day before it a moot point; it has been condemned by many because of the fact that it may not permeate throughout the tracts and therefore not demonstrate the entire lesion. Others have found by experience that it may suffuse out through the lymphatics and give a false impression of the size of the lesion. The use of probes is subject to the same limitation in that they may not pass through the extent of the sinus. The best and most dependable method of identifying the sinus, short of

actually opening it, and this is undesirable, is to carry the dissection just outside of the gritty, hard scar tissue. While pressure dressings of many types are used, Scott¹⁸ points out that they may have a deleterious effect by impairing the circulation and may invert the skin edges; with the last two methods it has not been necessary to apply pressure, though a moderate amount is needed in Brezin's method to hold the flap in place. The buttocks may be strapped together as an added means of relieving tension on the skin suture line.

Postoperatively, patients are confined to bed for four to eight days. No attempt is made to induce constipation, but neither is any effort made to cause defecation.

In conclusion, it is to be hoped that these methods of repair will be found useful. It would appear that the relatively simple procedure described by Shute is preferable, and the results were better than by any other method. It is recommended that the reader consult these articles, for the excellent diagrams and photographs will give a very clear understanding of each method.

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CLINICO-PATHOLOGIC COMMENT

APPROVAL OF LABORATORIES TO PERFORM PRE-NATAL SEROLOGIC TESTS

To aid in the prevention of congenital syphilis, the 1943 Territorial Legislature passed Act 219 (H. B. 316), the following sections of which refer to laboratories performing pre-natal serologic tests for syphilis:

SECTION 1. Every physician attending a pregnant woman in the Territory of Hawaii for conditions relating to her pregnancy during the period of gestation and/or at delivery, shall, in the case of every woman attended, take or cause to be taken a sample of the blood of such woman, and shall submit such sample to an approved laboratory for a standard serologic test for syphilis. Every other person permitted by law to attend pregnant women in the Territory, but not permitted by law to take blood samples, shall cause a sample of the blood of every pregnant woman attended by him to be taken by a duly licensed physician and shall have such sample submitted to an approved laboratory for a standard serologic test for syphilis. Such samples shall be taken at the time of the first visit to the pregnant woman or within fourteen days thereafter. Every pregnant woman shall permit such sample of her blood to be taken by a licensed physician as hereinabove provided.

SECTION 2. For the purpose of this Act a standard serologic test shall be a test for syphilis approved by the Board of Health of the Territory, and shall be made at a laboratory approved to make such tests by the board of health. Such laboratory tests as are required by this Act shall be made on request without charge at the board of health laboratories. The board of health shall issue a "laboratory report form" to be distributed upon application to all laboratories approved to make tests called for in this section. Any laboratory making any such tests shall prepare the report thereof in triplicate. The original of such report shall be transmitted by the laboratory making such test to the certifying physician. The duplicate of such reports shall be forwarded at weekly intervals to the board of health. The triplicate shall be retained by the laboratory in its files and shall be open at any time for inspection by any authorized representative of the board of health.

The passage of this Act presented the problem of approving laboratories to conduct pre-natal serologic tests for syphilis, and immediately the questions arose: Should the Board of Health issue approval retroactively? Should examinations be conducted for those seeking approval, or should such approval be extended on the basis of previous serologic evaluations? Personnel changes had occurred in many previously evaluated laboratories;

many small outside island laboratories had not been evaluated, and retroactive approval could not guarantee the ability of the laboratory or its personnel to conduct such tests satisfactorily. In fairness to all concerned it was decided, therefore, to conduct an evaluation of all laboratories interested in obtaining approval to perform pre-natal serologic tests.

Standards for evaluating the efficiency of laboratories provided that (1) laboratories be under competent direction, (2) they possess adequate personnel and facilities for work, and (3) laboratory directors agree in writing as to the conduct of the work. Laboratories meeting these minimum standards were permitted to participate in the serologic evaluation.

Serologic evaluation tests were based upon the following provisions:

(1)-That tests used be of sufficient scope to differentiate accurately serums of marked and slight specific activity in order to avoid prezone effects;

(2) That positive reactions not be obtained, or obtained only in rare instances, with specimens from persons in good health apparently free from syphilis;

(3) That definite reactions be obtained in all but an extremely small percentage of instances with specimens from untreated patients with manifestations of secondary syphilis;

(4) That the result reported by the laboratory approximate the consensus of the results obtained by other approved laboratories with specimens from treated patients with syphilis.

Twenty-five laboratories, including those of the Board of Health, qualified to participate in the evaluation.

Through the cooperation of the Territorial Hospital at Kaneohe, blood specimens were obtained from ten individuals with varied serologic histories. While ten specimens may not be considered sufficient to gauge the sensitivity and specificity of serologic results, it was felt that with evaluations being made subsequently at regular intervals the practical needs of the community would be met satisfactorily. Identical specimens were submitted to all the participating laboratories under coded numbers. Each laboratory was given an identifying number by means of which it could compare its findings with the results of the other participants, whose identities were also concealed by identifying numbers.

Specimens of blood for the pre-natal serologic evaluation were delivered to the laboratories on July 27, 1943; tests were conducted between July 27 and July 29 and the results were returned to the Board of Health by August 1st.

Two types of evaluation are used; one to determine which serologic test is superior to the others; and the other to determine how each laboratory compares to the level of average dependability. The Board of Health was primarily interested in the latter evaluation and a good record of specificity and sensitivity was expected of all participants.

The following table gives the results of the

participating laboratories listed by their identifying numbers.

The results are tabulated as *positive*, *doubtful* or *negative* as recommended by the American Committee on Evaluation of Sero-diagnostic Tests for Syphilis. A more detailed report, including the tube readings, was mailed to the laboratories taking part. There was some confusion in interpretation of the Kahn test. The interpretations in the table have been corrected, where necessary, according to rules laid down by the U. S. Public Health Service Supplement #9 to Venereal Disease Information, p. 190-191, 1939, that a total of 6 pluses to 12 pluses on the three tubes be reported positive, a total of 2½ to 5 pluses doubtful, and 2 pluses or less, negative.

SPECIMEN	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10
TYPE OF SYPHILIS	LATENT	LATENT	SECONDARY	SECONDARY	LATENT	SECONDARY	SECONDARY	NORMAL DONOR	LATENT	NORMAL DONOR
Kahn										
LAT.										
# 2	Doubt	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
3	Neg	Doubt	Pos	Pos	Doubt	Doubt	Pos	Neg	Pos	Neg
4	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
7	Neg	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
8	Neg	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
9	Neg	Neg	Pos	Pos	Doubt	Pos	Pos	Neg	Doubt	Neg
10	Neg	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
11	Neg	Neg	Pos	Pos	Doubt	Pos	Pos	Neg	Pos	Neg
12	Neg	Doubt	Pos	Pos	Doubt	Pos	Pos	Neg	Pos	Neg
13	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
14	Neg	Neg	Pos	Pos	Hemo	Pos	Pos	Neg	Doubt	Neg
16	Neg	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Hemo	Neg
17	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
18	Neg	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Doubt	Neg
19	Neg	Neg	Pos	Pos	Pos	Pos	Doubt	Neg	Pos	Neg
20	Doubt	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
21	Doubt	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
22	Doubt	Doubt	Pos	Doubt	Pos	Pos	Pos	Neg	Pos	Neg
23	Doubt	Pos	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
24	Neg	Neg	Pos	Pos	Doubt	Pos	Pos	Neg	Doubt	Neg
25	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Doubt	Neg
Kolmer										
5	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Neg	Neg
6	Neg	Doubt	Pos	Pos	Doubt	Pos	Pos	Neg	Neg	Neg
9	Neg	Neg	Pos	Pos	Neg	Pos	Pos	Neg	Neg	Neg
14	Doubt	Neg	Pos	Pos	Hemo	Pos	Pos	Neg	Neg	Neg
17	Neg	Neg	Pos	Pos	Neg	Pos	Pos	Neg	Neg	Neg
18	Neg	Doubt	Pos	Pos	Neg	Pos	Pos	Neg	Wk pos	Neg
19	Neg	Doubt	Pos	Pos	Neg	Pos	Pos	Neg	Doubt	Neg
20	Neg	Neg	Pos	Pos	Neg	Pos	Pos	Neg	Neg	Neg
21	Doubt	Neg	Pos	Pos	Neg	Pos	Pos	Neg	Neg	Neg
22	Neg	Neg	Pos	Pos	Wk pos	Pos	Pos	Neg	Neg	Neg
23	Neg	Neg	Pos	Pos	Doubt	Pos	Pos	Neg	Neg	Neg
Eagle										
1	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
4	Doubt	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
6	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
7	Neg	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
8	Neg	Neg	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
15	Doubt	Doubt	Pos	Pos	Hemo	Pos	Pos	Neg	Pos	Neg
20	Doubt	Pos	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
Kline										
2	Doubt	Pos	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
5	Doubt	Pos	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
20	Doubt	Pos	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg
25	Doubt	Doubt	Pos	Pos	Pos	Pos	Pos	Neg	Pos	Neg

One complement fixation test, the Kolmer, and three standard flocculation tests, the Kahn, Kline and Eagle, were performed by the participating laboratories. Twenty-one of the 25 laboratories taking part performed Kahn tests; 7 the Kahn alone; 9 in conjunction with Kolmers, and 5 with the Kline and Eagle. Eleven laboratories performed Kolmer reactions, all of them with one or more flocculation tests.

It has already been pointed out that this was an evaluation of laboratories and not of the specificity or sensitivity of any given serologic test for syphilis. However, the results obtained are of considerable interest and worthy of a few comments.

Serums 8 and 10 were from normal donors; a glance at the table shows that in no instance did any test performed by any laboratory yield a false positive result. Serums 3, 4, 6 and 7 were from cases of secondary syphilis presumably with high reagin titres. Again a glance at the table shows that, with the exception of 4 doubtful Kahns, a positive result was obtained with every test. Serums 1, 2, 5 and 9 gave the most conflicting, and most interesting, results. Number 1, with previous negative serology, gave 16 negative and 5 doubtful Kahns, 4 negative and 3 doubtful Eagles, 4 doubtful Klines and 9 negative and 2 doubtful Kolmers. Number 2, with previous doubtful flocculation reactions and negative complement-fixation tests, gave 1 positive, 11 doubtful and 9 negative Kahns, 1 positive, 3 doubtful and 3 negative Eagles, 3 positive and 1 doubtful Kline and 3 doubtful and 8 negative Kolmers.

From these findings, it is apparent that serums 1 and 2 had very low reagin contents; 1, of course, the lower. These two cases teach a lesson to the clinician in that they explain in a very graphic manner how serums with low reagin titres may yield conflicting and therefore confusing results in different laboratories. The reagin titre in such serums is so low as to be below the minimal amount necessary to produce clear-cut positive reactions with serologic tests of present day sensitivity. Serums 5 and 9, also from patients with latent syphilis, generally gave positive flocculation reactions and negative Kolmers in accordance with the often repeated dictum that flocculation tests in general are somewhat more sensitive than complement-fixation reaction.

The degree of uniformity among the majority of the laboratories evaluated represents the upper

limit attainable with the technical methods now available. It must be recognized that the accuracy of serologic results is dependent upon sound methods and careful technical work. Varieties due to poor laboratory work may be unlimited. The present evaluation indicates that the serologic work done by the laboratories of Hawaii is, on the whole, of high quality and therefore reliable.

On the basis of the results of the aforementioned evaluation, the following laboratories have been approved by the Board of Health to conduct pre-natal serologic tests for syphilis during the current fiscal year:

Island of Hawaii

Board of Health, Waiakea
Hilo Memorial Hospital
Puumaile Hospital

Island of Kauai

Board of Health (Pathological Laboratory
Kauai Medical Society), Koloa

Island of Maui

Board of Health, Puunene
Kula Hospital
Malulani Hospital
Paia Hospital

Island of Molokai

Board of Health (Shingle Memorial Hospital)

Island of Oahu

Alsup Clinic
Batten & Bell (Drs.)
Board of Health, Honolulu
Clinic (The)
Culpepper (Dr.)
Ewa Hospital
Fronk-Wynn Clinic
Honolulu Blood and Plasma Bank
Kahuku Hospital

Kapiolani Maternity Hospital
Kuakini Hospital
Leahi Hospital
Medical Group
Pinkerton (Dr.)
Queen's Hospital
St. Francis Hospital

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COUNTY SOCIETY REPORTS

MAUI COUNTY MEDICAL SOCIETY

The Maui County Society reports luncheon meetings held August 15, September 12 and October 17 at the Wailuku Hotel.

Committees:

An advisory committee to the Department of Public Welfare was appointed in August, consisting of Dr. Balfour, Chairman, Drs. Sanders and Patterson.

Another committee was appointed to investigate the possibilities of the Society acting as financial agent for the disbursement of Territorial funds made available for the treatment of indigents. Dr. McArthur, Chairman, Drs. Balfour and von Asch, appointed.

Dr. Sanders was instructed to investigate the possibilities of having a party for service men.

Dr. von Asch was appointed to take charge of and care for the library.

Immunization procedure:

The society agreed that the following recommendations be made to the Board of Health: (1) that tetanus antitoxin be combined with diphtheria antitoxin; (2) that pertussis vaccine be combined with diphtheria antitoxin, if possible, or be given separately, if necessary; (3) that all residents of the Territory have yearly booster shots of typhoid-paratyphoid vaccine.

Scientific program:

Lt. Comdr. LeCocq from Pearl Harbor covered the following subjects at the August meeting: The use of neo-arsphenamine in the treatment of early osteomyelitis with positive blood culture; treatment of compound fractures; non-union of fractured clavicle; dislocation of acromioclavicular articulation.

Major John R. Turiga gave an interesting talk on psychoneuroses and the war at the September meeting and Dr. Patterson presented a paper entitled "Reactions to the readministration of the sulfonamide drugs" in October.

W. B. PATTERSON, M.D., *Secretary.*

HAWAII COUNTY MEDICAL SOCIETY

Meetings continue to be held late in the afternoon at the staff room of the Hilo Memorial Hospital.

July 20 meeting.

Dr. Wishik, director of the Bureau of Maternal and Child Health of the Board of Health, gave an account of his experiences in the child health conferences on the island. He noted three outstanding paradoxes in these clinics: (1) the use of karo in formulas as against the use of cane sugar on the mainland; (2) the presence of clinical rickets in 75 per cent of the children seen at the conferences which he attributed to lack of sunshine caused by the psychological aspiration of the dark races to white skin; and insufficient prescription of vitamin D and too much emphasis on the use of concentrated preparation rather than plain codliver oil; (3) the extremely good health, except for rickets, of infants, with decreasing health as age increases in the pre-school children. This he attributed to an inadequate, unbalanced diet, and suggested extension of the services and program to pre-school children.

Dr. Wishik gave a brief summary of the Kenny treatment and the polio situation on Oahu, and outlined the military dependents program for which \$20,000 had been allocated to the Territory for one year. Prenatal, obstetric, post-partum and pediatric services are provided for and \$35.00 granted for each normal delivery. Army hospital facilities are to be used and all cases in the area extending from and including Papaikou and the city of Hilo in the South Hilo and Puna districts may be sent to Mt. View Hospital. The patient may choose to go to her private physician, in which case, however, no remuneration is allowed. Physicians treating these cases in the remaining districts would be remunerated at established rates provided authorization had been granted in advance. Transportation to be furnished to the Mountain View Hospital by the O.C.D., and prenatal care by the Army.

Final draft of the Constitution and By-laws was presented and voted to be adopted.

September 7 meeting.

The purpose of the meeting was to formulate ways and means to combat dengue fever. Invited

to attend were Col. Alt from the Office of the Military Governor; Major Knese, District Surgeon; Capt. Farmer, Assistant District Surgeon; Capt. Bernstein, Health Officer; Dr. Norman R. Sloan, Resident Physician, Kalaupapa Hospital; M. G. Fox, agent Department of Public Welfare, and Lt. Comdr. Jenkins, Medical Officer, Naval Airbase. Nineteen members were present.

Dr. Orenstein gave a clinical description of the disease, outlining the etiology, mode of transmission, symptomatology, clinical and laboratory findings, treatment and prognosis.

Dr. Sloan, who has had considerable personal experience with the disease during residence in the Virgin Islands where dengue is endemic, differentiated various mosquitoes, adult and larva, by sketches. In the differential diagnosis, he stated that influenza was by far the most difficult to distinguish from dengue but that the presence of a rash, however atypical or evanescent, itching of the palms and soles occurring about the ninth day, and the saddle-back fever, were outstanding characteristics.

Capt. Bernstein gave a detailed statistical report of the symptoms and clinical findings as compiled by Dr. Enright. The report was based on the 141 cases occurring in the recent epidemic on Oahu. Dr. Bernstein outlined a prevention and control program: (1) inasmuch as there is no reservoir of infection on the island, attempt should be made to maintain this situation by limitation of travel, inspection of personnel and passengers from planes and ships, hospitalization and screening of all suspects, and (2) inasmuch as the mosquito is the vector of transmission, a program to control mosquitoes near residences is in order and has been inaugurated. Mosquito nets, he said, would be furnished to screen cases for the four day period during which the infective virus can be passed on to the mosquito.

Lt. Comdr. Jenkins stated that all incoming planes are sprayed by pyrethrum bombs ten minutes prior to disembarkation, that eradication of breeding places for mosquitoes in the areas immediately adjoining the barracks had been in effect for some time.

Major Knese reported that all ships, personnel and passengers were being inspected. Plans have been completed to hospitalize all suspects among service personnel at the Mountain View Hospital and all suspects among civilians were to be hospitalized if facilities permitted, through some arrangements with the local health authorities. In the event of an outbreak, the Army would (1) inspect all military and civilian personnel connected with the Army; (2) screen all cases in a hospital for four days, (3) increase measures to destroy mosquitoes, and (4) furnish nets for all cases, military or civilian.

Since there would probably be insufficient bed-space in the isolation wing of the Hilo Memorial Hospital, the director of the O.C.D. had been consulted regarding the use of the O.C.D. hospital at Olaa. It will be possible to use that hospital provided (1) there be no available beds at the Hilo Hospital; (2) that the Olaa Hospital be reimbursed at the usual rates; (3) that a small section of the hospital be screened off for the protection of other patients; (4) that only said section, consisting of wards for bed patients only, be used; and (5) that medical care be vested solely in the physician of the Olaa Sugar Company. It was the consensus that all the provisions could readily be met except the one re reimbursement. Mr. Fox stated his department will pay bills incurred by indigents.

Regarding hospitalization per se, Dr. Bernstein advised that enforced hospitalization of suspects and cases was legal.

It was felt that apparently inadequate measures were being taken on Oahu to prevent the spread of dengue to this island, that passengers embarking there were not being examined since several had reported to their physicians immediately on arrival with fever which had its onset prior to embarkation. Dr. Bernstein was requested to write the Territorial Board of Health suggesting that more nearly adequate supervision at that vulnerable point be instituted.

October 12 meeting.

A colored sound film entitled "Peptic Ulcer" was presented.

Dr. W. F. Leslie, medical director of Puumaile Hospital, discussed the lack of bed space in that institution for tuberculosis cases. He stated that there has been an increase in the number of cases awaiting admission from 16 in 1940 to 22 in 1942 and 34 in 1943; that there has been an increase in the number of deaths among cases awaiting admission and that the waiting period had increased until at present three to four months elapse before admission. Because of the urgent need for beds, it has been the practice to discharge cases before they were fully ready and this has been reflected in the increasing number of re-admissions to the hospital. He requested the Society's help in securing adequate bed space at the hospital. A committee was appointed to draw up a resolution to the proper civil authorities requesting their aid.

Dr. Leslie stated that he had recently received word from the director of the Tuberculosis Bureau of the Board of Health to the effect that chest x-rays are required by the Department of Public Instruction prior to employment and every three years thereafter, and that he had been designated the authorized agent to certify freedom from tuberculosis, i.e., he was to read all x-rays. It was his belief that it was not mandatory that x-rays be all taken at Puumaile Hospital.

A list of recently licensed physicians was read. A letter from R. W. Newton, former medical technician at the local Board of Health, in appreciation of the cooperation of the practicing physicians on the island was read. Dr. Orenstein stated that the O.C.D. ruling requiring registration of laboratories and laboratory technicians was still in effect.

Transfer of Dr. Harold M. Sexton from Honolulu County was accepted.

Dr. C. L. Carter announced that the physicians in the Hamakua, North and South Kohala districts were extending an invitation to the semi-annual dinner meeting to be held at Honokaa about the 13th of November.

A letter from the Board of Health requesting the Society's opinion on combined diphtheria and pertussis immunization for children and "booster" injections for typhoid and paratyphoid was read. The Society went on record favoring both of the above procedures.

The local high school requested a physician to examine school children other than plantation children and to give tuberculin tests to seniors. The secretary was instructed to contact an available physician.

M. LEON CHANG, M.D., *Secretary*

HONOLULU COUNTY MEDICAL SOCIETY

Summary of activities of the Board of Governors and membership meetings, August through November:

Foodhandlers' examinations. In the August meeting Dr. Lee announced that the Board of Health was drawing up new regulations.

Blood bank. The Board of Governors went on record as endorsing the continuation of the blood bank on a peace-time, self-supporting basis.

Sterilization. Carrying out a request made by Dr. Arnold, Sr., that a study be made of the legal status of sterilization, individuals indicated by him were called together for a meeting. This group recommended that a representative committee be appointed to study the matter of sterilization. The Board agreed that the same individuals constitute such a committee and set to work.

Immunization. In response to the Board of Health's request for opinion, it was voted to recommend that the typhoid "booster" shots be

made compulsory, but that the combined diphtheria and pertussis immunization remain voluntary.

Parking. It was agreed unanimously that the Society accept the parking privileges offered across Beretania Street and pay its share of \$5.00 monthly.

Membership. New members accepted were:

Capt. George S. White (service)
Edmund L. Lee
Alvin V. Majoska
B. M. Eveleth
Robert G. Johnston
Robert F. Bailey
M. Yamashiro
S. Inamine
John M. Felix
E. F. Slaten
Wm. M. Walsh

Lt. Volt H. Tom, M.C., U.S.A., was voted to Honorary membership posthumous. Lt. Tom was a native of the islands who lost his life at Guadalcanal.

Recommendations were made by the Board of Censors, and accepted by the Board of Governors, to expel Dr. Peter Young from membership. The required action by the membership has not yet been taken.

Vacancy on the Board of Censors, due to Dr. Osorio's leaving the Territory, is filled by Dr. Winter, appointed by the President.

Physicians in full-time military duty exempted from dues and assessments:

Lt. Joseph F. C. Lau, M.C., USA.
Major Robert B. Faus, M.C., USA.
Capt. Edmund Ing, M.C., USA.
Comdr. Joseph Palma, M.C., USNR.
Lt. Comdr. R. J. Mermod, M.C., USNR.
Comdr. R. J. Mansfield, M.C., USNR.
Lt. Richard C. Durant, M.C., USNR.

Hawaii Medical Service Association.

A total of \$2,783.96 was reported returned by this organization to 144 doctors who had funds accumulated in the Physicians' Reserve for the period July 1, 1942 to June 30, 1943.

The Musicians' Union was accepted by the Board of Governors for membership in the HMSA. This group of about 200 will pay a flat rate of \$2.00 per member and bills will be met on the "C" fee schedule; most of them are employed intermittently and have an average monthly wage of \$200.00.

Approval was given to continue the Civilian

Housing Area 3 group for a further six months, details to be left to Mr. Carter and Comdr. Kangeter, with the understanding that they could pay the doctor on the "B" schedule if they felt it necessary in order to avoid a deficit.

Hospitals.

Staff appointments. The Board of Governors was asked to draw up a statement of policy regarding the appointment to hospital staffs of aliens or American citizens of German or Japanese ancestry. It seems that there is often considerable controversy on this point and the Board drew up the following resolution to present to the membership:

WHEREAS it has come to the attention of the Board of Governors in recent months that the question has repeatedly been raised as to the propriety of appointing to local hospital staffs physicians of alien birth, or physicians who are American citizens but are descendants from countries with which the United States is at war,

BE IT RESOLVED that the Honolulu County Medical Society go on record as recommending to the hospitals that the eligibility for appointment to such hospital staffs be on the basis of licensure to practice medicine in the Territory of Hawaii and that the physician be known to be in good standing, professionally and ethically, and that it is not considered within the province of the medical society or the hospitals to adjudge a man's standing, politically or nationally; that task presumably being in the hands of appropriate agencies of the government.

Kuakini Venereal Disease Section. The attention of the Board of Health was directed to the fact that there were only two to four cases of venereal disease hospitalized in what was Kuakini's maternity section, and that since there is an acute shortage of maternity beds in the community, it be recommended that these venereal cases be cared for elsewhere. The Board of Health replied that if these private venereal disease patients could be hospitalized and adequately cared for elsewhere, it was possible that the Army would be willing to have the top floor of this wing of Kuakini used for its original purpose, i.e., the care of maternity patients and the newborn.

Discussion of this subject further disclosed that these venereal cases might be hospitalized in Queen's new isolation ward. A follow-up of this with the Army, the Board of Health, Queen's Hospital brought forth letters from the later two organizations indicating that steps were being taken to rectify this situation and the Board felt that its inquiry had served its purpose.

Kuakini Hospital administration. Upon report that the hospital needed the guidance and support of the medical society, Dr. Wishik was designated to serve as advisor to meet with the hospital's board.

General bed shortage. The Chamber of Commerce and the Board of Health, in reply to the Board of Governor's request, endorsed the program to provide additional beds for the community

and the Chamber asked the Military Governor and the Civil Governor to lend their assistance by approving the projects for permanent construction and allotting the necessary shipping space for materials; also that a general health survey be undertaken as soon as war conditions permit.

It was reported that several meetings have meanwhile been held by representatives of the hospital trustees and they are agreed on the need for inter-hospital consultation before going ahead with individual building plans.

Finances.

A special committee appointed by the President to study the budget for 1943-1944 (which, including the \$3,000 appropriation made to the library, was expected to show a sizeable deficit) made the following recommendations:

- (1) To ask the Territorial Association to appropriate \$500.00 to the library as last year, without assessment to the counties;
- (2) To levy an assessment of \$15.00 per member;
- (3) In order not to make necessary an increase in dues, that the society build up a general fund, with the following as possible sources:
 - (a) Charge for services of staff doctors on City and County and Department of Welfare patients, on the basis of 20 per cent of the hospitalization bill.
 - (b) Pay into the society, instead of to individuals, the moneys accumulated in the Physicians' Reserve Fund of the HMSA.
- (4) Extend the treasurer's term of office to three years, and that he be chosen from among past Presidents.
- (5) That the Treasurer be bonded for \$5,000 and if this does not cover Mrs. Bolles, that she be bonded also.

There was much discussion as to the fairness of requesting the Physicians' Reserve Fund and increasing the dues of institutional and Board of Health physicians. The Board of Governors finally voted to approve the report of the finance committee to the extent of requesting 50 per cent of the Physicians' Reserve Fund, and the total amount to be billed on City and County cases, these moneys to be placed into a reserve fund of the society; and that this proposal be submitted to the membership for final action.

Notice was circulated to the membership of the proposed plan but the matter could not be fully discussed at the September 10 meeting because of the long program. It was voted to levy an assessment of \$15.00, and the matter be fully discussed at a future meeting.

At the November Board of Governor's meeting a proposal was presented to build up a library endowment fund, asking for voluntary contributions from doctors, and asking commercial houses to match the funds so raised. It was voted that a letter be prepared for approval of the Board.

—ELIZABETH D. BOLLES



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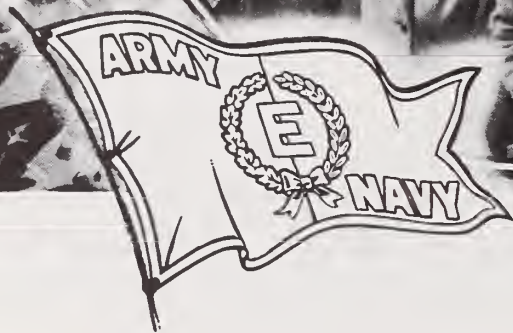
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LIBRARY NOTES

PROGRESS!

This last year has seen a tremendous improvement in the service the Honolulu library is able to render.

The complexion has changed from one of discouragement to keen satisfaction. Instead of having continually to say, "No, we don't have it", we now are able to find in our files the larger share of journals on a reference list. A tremendous amount of planning and work—in some instances days of hard, physical, grimy labor in the stackroom—have gone into the transition.

Journals

The largest single contribution was the acquisition of a large portion of the medical library of the Kalihi Receiving Station. This collection brought us bound volumes of many journals extending back many years and added files of other journals which our library was not carrying.

While on the coast in the spring, our librarian enlisted the interest of several libraries to help speed up the completion of our journal files. The library of the Los Angeles County Medical Society has thus added 120 volumes of journals and several cases of books; the University of California Medical Library has already shipped us bound volumes of three journals covering in each instance a period of ten years, and two cases of books. At Tulane University Medical Library, where the library exchange is controlled, special consideration is being given to our list of needs. All these librarians are keen to help us, having been made aware of the demands put upon us by the Army and Navy doctors.

We can now boast of complete files to date of:

American Journal of Diseases of Children, from 1920;
American Journal of Medical Sciences, from 1914;
American Journal of Obstetrics and Gynecology, from 1917;
American Journal of Public Health, from 1933;
American Journal of Surgery, from 1934;
American Journal of Tropical Medicine, from 1924;
Annals of Surgery, from 1904;
Archives of Dermatology and Syphilology, from 1922;
British Medical Journal, from 1900;
Canadian Medical Journal, from 1934;
Journal of the American Medical Association, from 1894;
Journal of Bone & Joint Surgery, from 1927;
Journal of Experimental Medicine, from 1900;
Journal of Infectious Diseases, from 1904; and
Surgery, Gynecology & Obstetrics, from 1910.

Many others are lacking only a few isolated issues to be complete.

What is more, we now have all this material listed. We know from our card file exactly what issues we have, what is missing and what duplicates there are. These duplicates are filed separately and have just been offered to the outside islands, which this year have become very library-conscious. Hawaii has already received from our duplicates a file of *The American Journal of Surgery*, 1936-1941, and some copies of the *Quarterly Cumulative Index*.

The receipt of bound journals from the mainland libraries above-mentioned in some cases will release several consecutive years of unbound journals for the outside island libraries.

Major Tessmer, formerly pathologist at Queen's, has rendered an invaluable service by supplying us a list of medical journals carried by all Honolulu libraries. This information has been transferred to cards and from the resultant union catalogue we can tell at a glance whether a given journal is available to Honolulu, and where—whether the Clinic, the HSPA, the Department of Agriculture and Forestry, the Board of Health, the University, Tripler or the Naval Hospital has it.

To further complete this union catalogue, individual physicians have been requested to list their journal files with us. Not only has this served our union catalogue, but the stock-taking has resulted in several physicians giving us journals needed to round out our files. Unfortunately many physicians in the past have thrown out old journals. This should never be done without first checking to see whether the library has use for them, and now these discards become particularly valuable in that they can be used to build up the outside island libraries.

At a recent meeting of the Hawaii Library Association, personnel from all libraries carrying medical books or journals were invited, and the groundwork laid for activity shortly to be undertaken to centralize medical material as much as possible. For instance, our library and Tripler General Hospital carry the *Journal of Parasitology* for 1912-1917, the HSPA covers 1917-1924, and 1929, the Pineapple Producers 1926-1929. If these organizations are willing, it would seem desirable to consolidate this file, any one of the four organizations to be the custodian. Such consolidation, spread

over 133 different journals, which is the number we carry, will eliminate many duplications and release much shelf space, especially at the Library of Hawaii and the University Library, both of which carry a year or two of several medical publications which as an isolated group are valueless from a research standpoint and might be just the numbers needed by a medical library to complete its files.

Bookbinding

Another activity for which the library is grateful is the program of bookbinding made possible this year by the increased library appropriation. It will take years to "cover" all the journals, but in five months' part-time service of one man 114 volumes have been bound. The improvement in appearance of the library will soon become noticeable, to say nothing of how much it will facilitate the handling of the older material, particularly the coverless journals such as the *Lancet*, *British Medical Journal*, and the *New England Journal of Medicine*, all widely used.

We look forward to the time when a bookbinding service may be offered to the members of the society for the preservation of their private journal libraries.

Pamphlets and Reprints

This file has been extensively added to and now numbers about 600 articles. The awakening interest of the outside island physicians in library service has given impetus to augmenting this file, as a reprint collection offers material readily available, easily mailed, and recent. There is a vast quantity of this material still at Kalihi Hospital, untouched.

Books

This year the Library Committee was able to make its first substantial purchase of books, adding those listed under "Accessions" published elsewhere in this issue.

Making selections for purchase has always been a difficult task. Early this year the Library Committee developed a procedure which has brought results. Some thirty physicians were designated to make selections, each in his particular field, as follows:

Allergy	Major T. Nelson
Anatomy, Histology	Richard K. C. Lee
Anesthesia	R. L. Hill
Bacteriology	I. L. Tilden
Biography and History	Capt. F. L. Pleadwell
Chemistry and Biochemistry	Bernard Witlin
Clinical Medicine	H. L. Arnold
Dermatology	H. L. Arnold, Jr.
Dietetics and Nutrition	D. C. Marshall
Economics, Medical	F. J. Pinkerton
Endocrinology	H. L. Arnold
Heart and Circulation	H. L. Arnold

Hematology	Ernestine K. Hamre
Hospitals	Gustav Olson
Infectious diseases	J. R. Enright
Legal and Industrial Medicine	F. J. Halford
Neurology and Psychiatry	R. D. Kepner and Ralph Cloward
Nursing	Helen Gage
Obstetrics and Gynecology	Lyle G. Phillips
Ophthalmology and Otorhinolaryngology	R. M. Ogawa and E. R. Austin
Orthopedics	S. E. Stewart
Pathology	E. A. Femel
Pediatrics	D. C. Marshall
Pharmacology and Therapeutics	H. L. Arnold
Physiotherapy	H. L. Arnold
Physiology	H. L. Arnold
Proctology	P. S. Irwin
Public Health, Hygiene and Sanitation	J. R. Enright
Radiology and Radium	L. L. Buzaid
Respiratory Diseases	H. H. Walker
Surgery	R. L. Hill
Tropical Medicine	F. D. Nance
Tuberculosis	H. H. Walker
Tumors	G. A. Batten
Urology	P. S. Irwin
Venereal Diseases	S. Allison
War Medicine and Surgery	Joseph Palma
Miscellaneous	H. H. Walker

Each doctor was supplied with a list of the books carried by the library in his field, and as material came in from publishers describing new books, this was sent to the doctor for his evaluation. His recommendation for or against purchase was filed and when the Library Committee was ready to again consider purchases, a list desirable for purchase, by subject, was readily available.

This procedure was also applied to evaluating some several hundred odd books which had accumulated over the years, either as gifts, or part of the old library stored in Queen's basement. Only two doctors had the time and courage to go over the complete lot in two years' time, but now, on the recommendation of our large selection committee, we have elected to save out and incorporate into our library about two dozen of this lot, and have the list of those remaining to be offered to the outside island libraries. No doubt these libraries can make many selections from the lot which will tide them over until they can purchase, or otherwise acquire, later editions. After the outside islands have had their "go" at the list, the remainder will be used to reciprocate with the mainland library exchange.

These so-called "discards", as well as some duplicate journals, have served a good purpose with our Army and Navy visitors. Several times we have been able to give the medical officer or corpsman off a ship much needed reference or reading material otherwise unprocureable.

Index Catalogue

One of our most valued acquisitions for the year was made through the kindness of Colonel Harold W. Jones of the Army Medical Library in Washington, whose interest our librarian enlisted on her trip east. He had sent to us the 3rd and 4th series of the Index Catalogue—17 volumes in all. One volume is published each year and covers references ten years back for its particular alphabetic section of the index.

Another service that has been of great value to us is the Current List of Medical Literature—put out by the Army Library. Listed under subject headings are all recent articles appearing in the literature. It is a monthly publication, thus offering the very latest material, pending the availability of the A.M.A. Quarterly Index Medicus.

Do not destroy any old issues of the HAWAII MEDICAL JOURNAL, especially the January and November 1942, and the January 1943, issues. We have many requests from mainland libraries which we cannot fill, our supply being exhausted.

ACCESSIONS

One hundred and sixty-seven books and six hundred pamphlets and reprints were processed and added to the library this year. Of the books added, sixty-four were gifts, fifty permanent loan from Kalihi Hospital and fifty-four were purchased. The purchases are listed here.

MISCELLANEOUS

- Angina Pectoris* by Miller.
Modern Concepts of Cardiovascular Disease—American Heart Association.
Physical Diagnosis by Cabot and Adams.
Laboratory Diagnosis by Todd and Sanford.
Glandular Phys. and Therapy—a symposium.
The Pneumonias by Reiman.
Diseases of the Nose, Throat and Ear by Turner.
Diseases and Injuries of the Larynx by Jackson.
Handbook of Physical Therapy.
Physiology in Health and Disease by Wiggers.
Atlas of Electroencephalography.
Indigestion by Rehfuess.
Psychosomatic Medicine by Weiss and English.

- Clinical Hematology* by Wintrobe.
U. S. Pharmacopœia XII.
Standard Nomenclature of Disease and Operations.
Handbook of Medical Library Practice.
Who Walk Alone by Burgess.
National Formulary, 7th edition.
Kenny Method of Treatment for Infantile Paralysis by Dole, Pohl, Knapp.
Treatment of Infantile Paralysis in the Acute Stage by Kenny.
Elimination Diet and the Patient's Allergies by Rowe.
The Blood Bank by Kilduffe and DeBaKey.

NEUROLOGY AND PSYCHIATRY

- The Neuroses of War* by Miller.
Lectures on War Neurosis by Ross.
Babies Are Human Beings by Aldrich.
Psychotherapy with Children by Allen.
Child Psychiatry by Kanner.

OBSTETRICS AND GYNECOLOGY

- Textbook of Gynecology* by Curtis.
Obstetrics and Gynecology by Jameson.
Obstetrical Difficulties by Titus.
Menstrual Disorders by Fluhman.
Obstetrical Practice by Beck.

PATHOLOGY AND BACTERIOLOGY

- A Textbook of Pathology* by Bell.
Surgical Pathology by Boyd.
Gynecologic and Obstetrical Pathology by Novak.
Textbook of Pathology by MacCollum.
Approved Laboratory Technique by Kolmer.
Textbook of Clinical Parasitology by Belding.

SURGERY AND ORTHOPEDICS

- Surgical Practice of the Lahey Clinic*
Surgery of Injuries and Plastic Repair by Fomon.
Infection of the Hand by Knavel.
Orthopedic Operations by Stindler.

WAR MEDICINE

- Military Surgical Manuals
Ophthalmology and Otolaryngology.
Abdominal and Genito-Urinary Injuries
Orthopedic Subjects
Burns, Shock, Wound Healing and Vascular Injury
Neurosurgery and Thoracic Surgery
- Military Medical Manual
Manual of Dermatology
Treatment of Burns by Harkins.
Aviation Medicine by Hoff and Fulton.
Psychological Effects of War on Citizens and Soldiers by Gillespie.

JOURNALS

- American Journal of Psychiatry*
Gastroenterology.
Journal of Clinical Medicine.

"I have always felt that in the matter of libraries it was not only the duty but the privilege of those members of the profession who had a little spare cash and were in the receipt of large fees, to sanctify, so to speak, those fees, particularly when they were very large, by devoting a certain percentage to the purchase of rare books for the libraries in which they were interested. My surgical colleagues I have always bled with great pleasure for the libraries with which I have been connected."

SIR WILLIAM OSLER

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NOTES AND NEWS

DR. O. LEE SCHATTENBURG

I am sure I am expressing the sentiments of all when I say that we were shocked and grieved at the death of Lee Schattenburg. He has been one of the Society's most active members, and when called upon to perform a task as an officer, or on a committee, he could always be counted upon to give careful and conscientious direction to whatever was under consideration.

Lee started as an officer in the Society in 1934, being its Secretary, then its Vice-President, and in 1936 he was elected its President. He has served in many capacities before and after that time—on the Committee on Forms of Medical Practice; the Program Committee; as Delegate to the Territorial Association, and in planning post graduate courses for the membership. But primarily we associate him with the work of the Maternal and Infant Welfare Bureau of the Board of Health where he has made a notable contribution.

Lee came to Honolulu in 1925 from the University of California. Following an internship at the Queen's Hospital, he became associated with the Clinic for several years and subsequently went into the private practice of obstetrics and gynecology.

To his widow, Myrtle Schattenburg, and his three children, Ellen, Marion and George, the members of this Society extend their heartfelt sympathy for we too shall be ever and again conscious of the loss to the community and to ourselves as a society in the untimely passing of one who has given so earnestly and enthusiastically to further the cause of medical practice. Of him it can truly be said that he furthered the "achievement of intelligent unity and harmony in our society and has contributed to elevate and make effective the opinions of the profession in all scientific, legislative, public health, material and social affairs to the end that the profession received the respect and support from the community" through his endeavors. The reputation enjoyed in the community by Lee Schattenburg as a physician has reflected honor upon the whole profession.

GROVER A. BATTEN, M.D.

The Hawaii Chapter of the American College of Surgeons entertained Army and Navy members of the college stationed on Oahu, in November. DR. G. A. BATTEN, President of the Hawaii Chapter, acted as chairman of the meeting, which had been ably planned by Dr. Pinkerton. A variety of topics was discussed from 3:00 to 5:00 at which time the wives of the Honolulu members joined the party for cocktails, a buffet supper and dancing. More meetings of the sort are planned for the future.

There have been several new line-ups in recent months: DR. JOHN M. FELIX has joined DR. L. A. R. GASPAR, JR.; DR. ROBERT BAILEY has his offices with DR. CULPEPPER; DR. WILLIAM WALSH has gone in with DOCTORS BATTEN AND BELL; DR. ALFRED S. HARTWELL, formerly medical director of the Queen's Hospital, has been added to the medical department of The Clinic; DR. ROBERT JOHNSTON has returned to Honolulu and is practicing general surgery with the Medical Group; DR. ALVIN MAJOSKA, formerly resident in pathology at Queen's, has taken over the office of the late DR. O. LEE SCHATTENBURG; DR. H. S. DICKSON has taken over DR. OSORIO's practice, DR. OSORIO having left for the mainland.

DR. K. M. AMLIN who came to Honolulu from Kauai is now with the Alsup group.

DR. ARTHUR E. DURYEA has asked for transfer to a Southern California Medical Society.

DR. V. E. M. OSORIO has left the islands to take up practice in Contracosta County.

The new kitchen for the Queen's Hospital is rapidly nearing completion. The groundwork for the new wing of the hospital is being laid. Contractors bids are soon to be let.

Members and friends of the first tuberculosis institute to be held in Honolulu have purchased a chair in the Mabel Smyth Auditorium as a memorial to DR. PHILIP P. JACOBS, Director of the National Tuberculosis Association.

The Territorial Board of Health revoked the license of DR. PETER L. YOUNG to practice medicine in the Territory and the Society recently took action to expel him from membership.

Maui County no longer has a physician as County Health Officer. Mr. Zane, County Sanitation Officer, is acting County Health Officer.

DR. M. A. DEHARNE has been appointed Medical Director of the Wahiawa Emergency Hospital.

DR. THOMAS L. TAYLOR of the staff of the Territorial Hospital was elected to membership in the American Psychiatric Association.

DR. WALTER M. OZAWA, also of the Territorial Hospital, was elected to associate membership in the American Psychiatric Association.

DR. RALPH B. CLOWARD was elected to active membership in the Harvey Cushing Society at that Society's twelfth annual meeting.

DR. STEELE STEWART was on the mainland to observe the Kenny treatment, courses for which were given for doctors at the American Academy of Orthopedic Surgeons at Mayo Clinic and at the University of Minnesota.

DR. M. H. MACK left Wahiawa to go to the McBryde Sugar Plantation at Eleele, Kauai.

DR. HAROLD SEXTON left Honolulu for Hawaii to join his father in practice on that island.

DR. H. H. SEILER has left Maui to take over the practice of Dr. Homer Benson on Molokai. He is the physician to the Shingle Memorial Hospital.

DR. SHAPIRO moved from Pukoo, Molokai to Hana to replace Dr. St. Sure, Jr.

Word is received from DR. THOMAS MAEDA, formerly of Molokai and now doing graduate work in Philadelphia, that he may shortly enter the Army Medical Corps.

DR. F. A. ST. SURE, JR. is now with the Maui Agriculture Company at Paia and has replaced DR. JIGGS McARTHUR as medical director of the Maui OCD.

DR. R. J. HOAGLAND writes from a newly activated field hospital in the states which he has charge of and where he is enjoying his work very much. He sends his best regards, and hopes after the war is over to be assigned again to Hawaii.

DR. J. ALFRED BURDEN came through on his way to the coast not so long ago. He has seen activity in the intelligence service with the Army at Guadalcanal, New Georgia, and Vella la Vella during the last year. He and DR. JOHN McCLELLAN crossed paths at Guadalcanal where Dr. McClellan gave him medical attention. Dr. Burden has been decorated with the Silver Star for gallantry in action and has the Purple Heart.

DR. JOHN McCLELLAN is at present in the states recuperating from a fractured leg which he got trying to get into a foxhole.

DR. RICHARD DURANT, now a Lieutenant in the Navy, called up to say "hello" recently en route to the South.

The Hawaii Territorial Society for Mental Hygiene has been using the doctor's board room on the second floor of the Mabel Smyth Building as headquarters for a trial period of three months. Mrs. J. Garner Anthony, executive secretary, and her assistant, Mrs. Small, are busy with organizational, membership and program activities.

The Thursday dances, held once a month for doctors and nurses of the armed services, and catered to by the doctors' wives are more successful than ever, judging from the turnout. The shift from afternoon to evening probably had something to do with this.

DR. HAROLD M. JOHNSON went to the coast to take his American Board of Dermatology exams and to attend the Academy of Dermatology meeting.

DR. CHARLES WILBAR made a quick trip to Washington to attend meetings and scout personnel for the Board of Health and is back at his post again.

DR. EDWARD F. SLATEN has returned to the islands and is with the Oahu Sugar Company at Waipahu.

DR. BARTON M. EVELETH has for the past months been with the Ewa Hospital.

DR. KENNETH P. JONES is also in California, at San Fernando.

DR. ELIZABETH HUFF, new resident physician in medicine at Queen's Hospital, has done an excellent job with the planning of Thursday morning clinics.

DR. DOUGLAS BELL, as President of the Territorial Medical Association, has been asked to serve on the Advisory Committee on Postwar Planning of the Senate and House Holdover Committees.

DR. WILLIAM D. BALDWIN

Dr. William D. Baldwin died at his Maui home on Sunday, October 31, 1943. He leaves to his native Hawaii a record of seventy years of accomplishment that will preserve his memory in high honor.

Dr. Baldwin was born at Paia, Maui, October 25, 1873, and attended school there and at Oakland, California, before entering Hotchkiss, Yale and Johns Hopkins. His postgraduate medical training was received at St. Luke's Hospital in New York City and at the New York Post Graduate Hospital.

Dr. Baldwin returned to the Islands in 1904 to engage in private practice in Honolulu. He retired from active practice in 1914 to live at Haiku, Maui. He volunteered for Red Cross overseas duty in World War I and served with distinction as the director of the Vladivostok hospital.

Dr. Baldwin upheld the high ideals of the medical profession and his colleagues find condolence in the knowledge of the usefulness of his service.

COLONEL W. F. MACKLIN has retired from the Army and has resumed his practice at the Young Hotel.

DR. LOUIS HIRSCH writes that he is enjoying life on the Big Island. He left the Queen's Hospital to accept the position of pathologist for the Hilo Memorial Hospital.

DR. RICHARD T. TREADWELL, who left Hawaii before the war, is now located at San Luis Obispo, California.

DR. FRANCIS T. KANESHIRO has established offices at 304 S. Vineyard Street.

An article on "Night Vision, Ophthalmologic Reviews" by DR. W. J. HOLMES appeared in the August issue of the Archives of Ophthalmology, and Dr. Holmes has just completed his third mainland trip since the war.

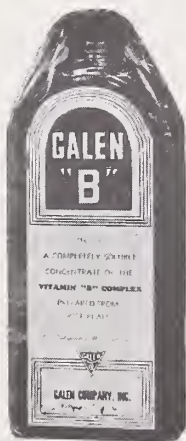
INDEX TO ADVERTISERS

Abbott Laboratories	57
American Factors, Ltd.	89
Cutter Laboratories	58
Don Baxter Co.	80
Eli Lilly & Company	64
Galen Company	107
Hawaii Medical Service Association	60
Kodak Hawaii, Limited	104
Lederle Laboratories, Inc.	100
Love's Biscuit & Bread Co.	94
McArthur & Summers Pharmacy	76
Marcelle Cosmetics	79
Mead Johnson & Co.	Back cover
Mercke & Co., Inc.	84
Park, Davis & Company	63
Petrogalar Laboratories	Third cover
Philip Morris & Co., Ltd., Inc.	75
Sandoz Chemical Works, Inc.	88
S.M.A. Corporation	108
Sharpe & Dohme	59
Squibb & Sons, E. R.	90
Upjohn	99
Wyeth & Brother, Incorporated	Second cover

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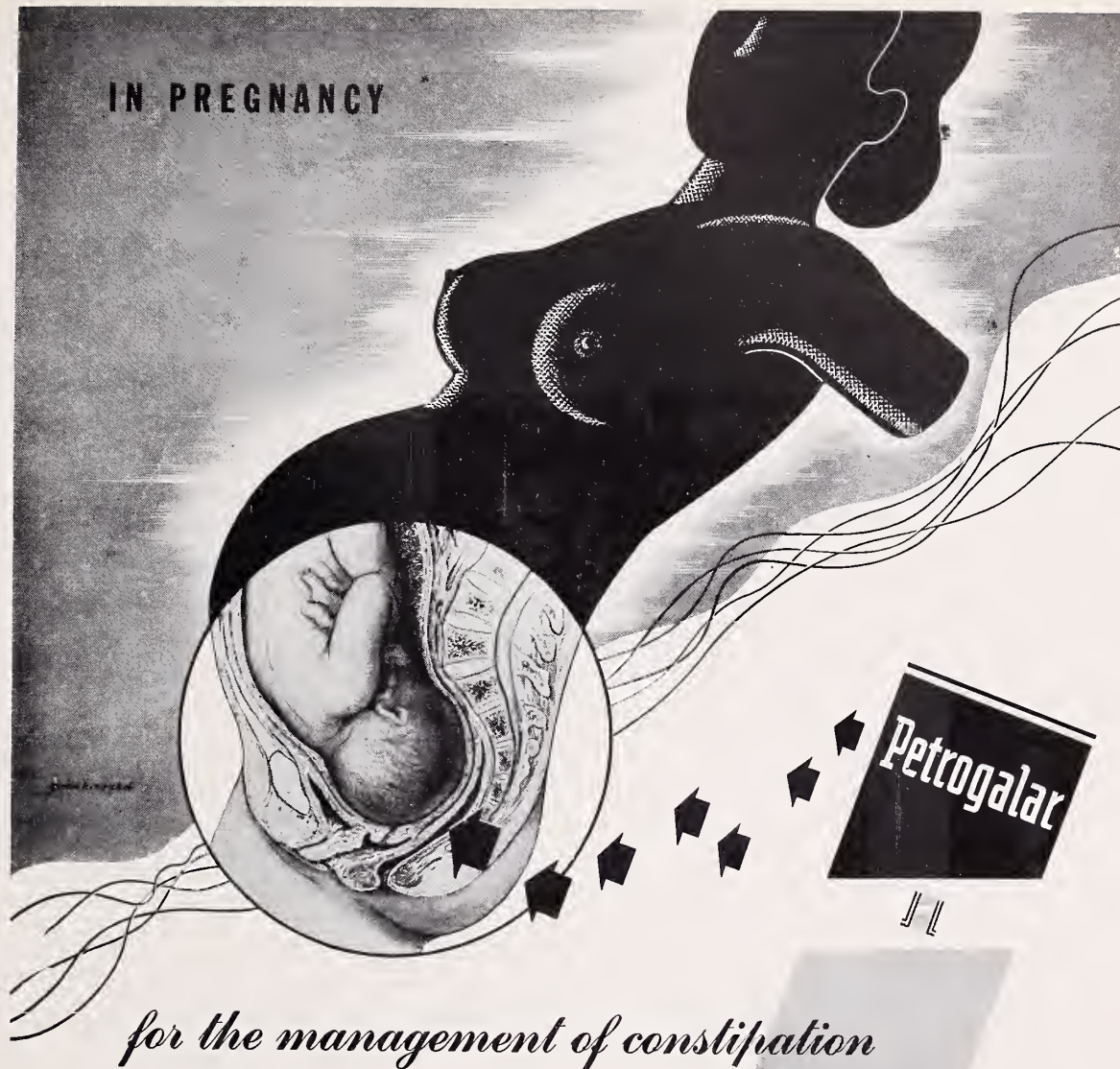
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VOLUME 3

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EARLY DIAGNOSIS OF LEPROSY

NORMAN R. SLOAN, M. D.

NOVOCAINE INJECTION FOR LOW BACK STRAIN

CAPT. WILLIAM L. ARGO, M. C., A. A. F.

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ANNUAL MEETING - TERRITORIAL ASSOCIATION

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1. MARSHALL, S. F., and DEVINE, J. W., Jr.: Gastrojejunal Ulcer, S. Clin. North America, 743-761 (June) 1941.

2. FAULEY, G. B.; FREEMAN, S.; IVY, A. C.; ATKINSON, A. J., and WIGODSKY, H. S.: Aluminum Phosphate in the Therapy of Peptic Ulcer, Arch. Int. Med. 67:563-578 (March) 1941.



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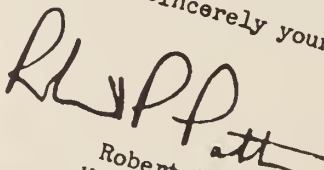
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TABLE OF CONTENTS

EARLY DIAGNOSIS OF LEPROSY

As Seen in Hawaii

Norman R. Sloan, M.D..... 111

"KISSING BUG BITES"

Harry L. Arnold, Jr., M.D., and

Douglas B. Bell, M.D..... 121

INDUSTRIAL HYGIENE IN HAWAII

A review of the Industrial Hygiene Program
of the Board of Health

Fredérick L. Schramm..... 123

EDITORIALS

FEDERALLY FINANCED OBSTETRICS..... 127

PROCUREMENT AND ASSIGNMENT..... 128

CLINICAL NOTES

NOVOCAINE INJECTION FOR
LOW BACK STRAIN

Capt. William L. Argo, M.C., A.A.F..... 133

CLINICO-PATHOLOGIC COMMENT

CYSTIC STATES OF THE OVARY

I. L. Tilden, M.D..... 137

HOSPITAL NEEDS

The Question of a Convalescent Nursing Home

Margaret M. L. Catton..... 141

EMERGENCY MEDICAL SERVICES

H. L. Arnold, M.D..... 145

COUNTY SOCIETY REPORTS..... 149

LIBRARY NOTES 153

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A million pints of blood

WITH the first rumblings of global war, foresighted Army, Navy, and Red Cross planners brought into being an organization to provide plasma for the armed services. For months hundreds of thousands of patriotic Americans have appeared at bleeding stations to give a portion of their blood so that a wounded fighting man might have a better chance to live.

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FIGHT INFANTILE PARALYSIS · JANUARY 14 TO 30

Early Diagnosis of Leprosy

AS SEEN IN HAWAII

NORMAN R. SLOAN, M.D.*

Kalaupapa, Molokai

Compulsory segregation of lepers is effective. Hawaii offers excellent evidence of this: known active lepers in 1890 (the peak year), 1175; June 30, 1943, 390.

It is true that other factors may be involved to some extent; but few would question the importance of diagnosing and isolating all cases of leprosy as early in the course of the disease as possible. Especially is this true of the more contagious lepromatous form. Early diagnosis is the task of the general practitioner who first sees the patient, who often has not had extensive experience with leprosy and must depend on his theoretical knowledge. Since I have found no satisfactory textbook description, I offer for him this presentation of early leprosy as seen in Hawaii: its incidence and presenting symptoms, and the technic of diagnosis.

Such a presentation to be useful must be brief, and therefore somewhat dogmatic. It is based largely on personal experience and the records of Kalaupapa Settlement (the territorial leprosarium on the island of Molokai), and should enable the physician to locate early cases of leprosy and make at least a tentative diagnosis.

CONTAGION

Leprosy has the longest incubation period and the most chronic course of any known infectious disease of man. The exact incubation time can seldom be determined with accuracy, but in most cases is probably between three and ten years. The majority of patients give a history of near relationship with active lepers, or prolonged and intimate contact, or both. *Mycobacterium leprae*, the "Hansen bacillus", is generally accepted as the causative agent, although Koch's postulates have not been fulfilled. A patient in whom this bacillus can be demonstrated is considered an "open case", and as such a definite menace to public health.

It is believed that hereditary transmission does not occur, but probably susceptibility can be and is inherited. Theoretically, a child of leprosy parents removed at birth should be non-leprosy. Actually, we cannot control the environment in which that child is reared, and a large proportion of admissions to Kalaupapa are of leprosy parentage. (For example, 17 of 48 patients now living between the ages of 9 and 18, had one or both parents leprosy.)

Evidently some immunity factor exists of which we know nothing. Why, for example, do we find 4 leprosy children scattered through a family of 11, with neither parent leprosy; while a leprosy couple have 9 children, all born in the settlement, of whom only 2 are leprosy? Why is it as yet impossible to cultivate the Hansen bacillus on artificial media, or to produce a systemic disease in lower animals? Why have all attempts at deliberate inoculation of human beings failed, except two, one of which is doubtful? Leprosy is a fruitful field for clinical and laboratory research.

RACE

Table 1 brings out strikingly the preponderance of

TABLE 1. *Leprosy and Race.*

	PATIENTS AT KALAUPAPA SEPT. 20, 1943				
	NUMBER	ADMISSIONS 1919-1938 PER CENT	NUMBER	PER CENT	RACIAL INCIDENCE*
Hawaiian	466	39.7	137	34.8	6.47
Part-Hawaiian	258	21.9	105	26.7	2.46
(Hawaiian and Part-Hawaiian)	(724)	(61.6)	(242)	(61.5)	(3.79)
Japanese	150	12.7	39	9.9	0.25
Filipino	130	11.1	39	9.9	0.74
Portuguese	69	5.9	39	9.9	1.27
Other Caucasian	23	1.9	6	1.5	0.09
Chinese	39	3.3	17	4.3	0.59
Korean	28	2.4	8	2.0	1.19
Puerto Rican	10	0.8	4	1.0	0.51
Others	3	0.3	....	....	....
	1176	100.0	394	100.0	

* Patients at Kalaupapa per 1000 of this racial group in the territory, based on 1939 population estimate (the last year in which "Portuguese" were separately listed).

Hawaiian and part-Hawaiian groups in the population of Kalaupapa. The low incidence among Japanese is also noteworthy. However, no race is exempt, and no suspect may be eliminated on the basis of race alone.

There are no recorded cases of negro leprosy in Hawaii, but one should be on the lookout for suspects in this group, especially if they have lived in the West Indies, Africa, or the Gulf Coast of the United States.

SEX

In Hawaii, male leprosy outnumber females about three to two.

* Dr. Edward S. Fish collected statistical material.

AGE

Figure 1 shows, in five-year groups, the age at

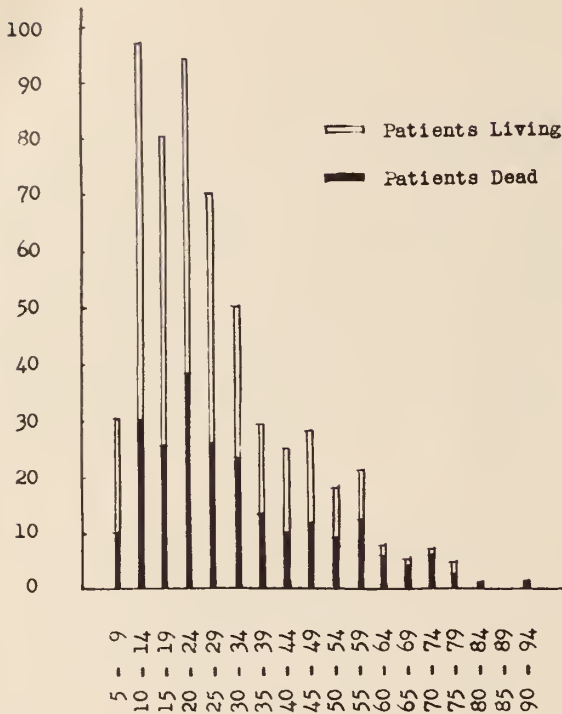


Fig. 1. Age at Admission of 568 Patients.

admission of a group of 568 patients, of whom 330 are living. All patients were included on whom reasonably reliable records were available. The youngest was five years old; the oldest, ninety-one. Cases have been reported in children of fifteen and nineteen months, from the Philippines¹ and Hawaii² respectively. It will be seen that while no age, except earliest infancy, is exempt, leprosy is primarily a disease of later childhood, adolescence, and early adult life. Since it is probable that prompt diagnosis would have lowered the average age by as much as two years, the highest incidence might reasonably be expected in the school-age group and through adolescence. Allowing for the incubation period, it is evident that most cases are contracted in infancy and childhood.

LIVING CONDITIONS

As one would naturally expect, people with poor standards of nutrition and cleanliness appear more susceptible to invasion by the Hansen bacillus. The ardently championed theory of the common poi bowl as a major factor in transmission is suggestive, but not proved. To paraphrase the saying of medical school days, "Respectability is no barrier to the entrance of Hansen bacilli." King and commoner, plutocrat and beggar, all have harbored the invader.

OCCUPATION

No relationship is found between occupation as such and susceptibility. Table 2 summarizes the available information. No doubt many, if not most, of those in the "None" or "Not Stated" groups should

TABLE 2. Occupational Classification of 595 Patients at Time of Admission.

Laborer	203
Student	150
Housewife	52
Farmer	20
Clerk	13
Chauffeur or Truck Driver	10
Cowboy	10
Domestic	9
Carpenter	8
Fisherman	7
Sailor	7
Stevedore	6
Foreman; Mechanic (5 each)	10
C.C.C.; Construction Work; Inmate, Boys' Industrial School; Janitor; Laundry Worker; Painter; Teacher (4 each)	28
Fireman; Longshoreman; Machinist (3 each)	9
Blacksmith; Bookkeeper; Brakeman; Engineer; Office Boy; Pipe-Fitter; Printer; Prisoner; Soldier; Stable Boy; Telephone Operator; Tug Captain (2 each)	24
Bricklayer; Bootblack; Candy Maker; Caretaker; Cook; Dairyman; Electrician; "Factory Owner"; "Factory Worker"; Forest Ranger; Gardener; Hat Maker; Housekeeper; Inmates of Institutions (Aged, Girls Industrial School, Mental); Job Repairman; Lei Seller; Mason; Pin Boy; Plumber; Priest; "Railroad Worker"; Service Station Operator; Shoemaker; Teamster; Watchman; Welder; Woodcutter (1 each)	29
"None"	595
Not stated	131
	322
	1048

be listed in the first three classes. It is intriguing to find a woman with four small children listed as "Occupation—None"!

PRESENTING SYMPTOMS

Records of approximately 1,000 patients were examined, and on 743 the presenting symptom—which in most cases is the complaint which took the patient to the doctor—was noted. Results are tabulated in Table 3. A few items call for comment:

TABLE 3. Presenting Symptoms.

	CASES
Macules ("spots", "blotches")	344
Nodules ("lumps", "boils")	97
Anesthesia ("numbness", burns)	64
Ulcers	63
Swelling of skin (including hands)	44
Muscle weakness (eyelids, face, hands, feet)	31
Contracture of fingers	28
Erythema	17
Swelling of foot or leg	14
Atrophy of digits	9
"Ringworm" (so diagnosed by physicians)	6
Obstruction to breathing	6
Itching	6
Blisters, becoming ulcerated	3
Painful hands	2
Shrivelled or wrinkled skin	2
Wrist or foot drop	2
Sore arm	1
Painful ulnar nerve	1
Difficulty in swallowing	1
Swelling of ears	1
"Sore eyes and ears"	1
Incomplete records (approximate)	743
	257
	1000

Almost half of these patients first noted some type of pigmentary skin disturbance. It appears that the "blotch" was usually hypopigmented, but often it was hyperpigmented or red (hyperemic). The importance of examining all such cases for leprosy is obvious.

Anesthesia is often first noted by the patient's burning himself because he is not conscious of the presence of the hot object. The burn may or may not be painful, depending on the degree of anesthesia present (Physical Examination, *item 5*).

It is striking that a relatively late lesion, such as laryngeal obstruction, should be a presenting symptom. By the time this occurs, we expect many other lepromatous lesions.

Although it is not included in our statistics, local physicians report that urticaria is a common presenting symptom.

In my experience, itching is not to be expected in uncomplicated leprosy, but it is possible that it may be included among the paresthesias said to be present in very early cases.

PHYSICAL EXAMINATION

Figure 2 gives in brief outline the generally accepted classification of leprosy as adopted by the International Congress of Leprosy held in Cairo, Egypt, in 1938.³ Attention is called to the abbreviations, which are frequently used in the literature.

Fig. 2. Classification of Leprosy³.

1. Lepromatous (L)
Lesions principally in skin and mucous membranes
Lepra bacilli abundant
Prognosis unfavorable
2. Neural (N)
Lesions primarily in nerve trunks
Lepra bacilli scanty or absent
Prognosis relatively favorable
Subtypes:
Anesthetic (Na)—Polyneuritic changes
Altered peripheral sensation
Contractures
"Trophic" disturbances: bone absorption, ulceration
Muscular atrophies and paralyses
Simple macular (Ns)
Non-granulomatous macules, flat or slightly elevated, smooth
Tuberculoid (Nt)
Granulomatous "macules," typical histologic appearance
3. Mixed (LN)

As shown in Table 4, compiled from all avail-

TABLE 4. *Conditions Sometimes Confused with Leprosy.*

DERMATOLOGIC CONDITIONS	NEUROLOGIC CONDITIONS	MUCOUS MEMBRANE CONDITIONS
<i>Conditions of Common Occurrence or Readily Confused</i>		
Syphilis	Syphilis (including "mal perforans")	Syphilis
Acne indurata	Burn scars	Glossitis
Cellulitis	Nerve injuries	Rhinitis
Dermatitis medicamentosa		Tuberculosis
Dermatophytosis ("ringworm")		
Erysipelas		
Seborrheic dermatitis		
Sebaceous cysts		
Tinea (pityriasis) versicolor		
Urticaria		
Vitiligo (leucoderma)		
Xanthoma		
<i>Conditions of Less Common or Rare Occurrence</i>		
Adenoma sebaceum	Amyotrophic lateral sclerosis	
Blastomycosis	Beriberi	
"Eczema"	Cervical rib	
Erysipeloid (Rosenbach)	Diphtheritic neuritis	
*Erythema multiforme	Hypertrophic interstitial neuritis	
*Erythema nodosum	Intercostal neuralgia	
Fibroma or neurofibroma	(including herpes zoster)	
Filariasis	Lead poisoning	
Granuloma annulare	Neuritis of lateral femoral nerve	
Granuloma (mycosis) fungoides	("meralgia paresthetica")	
Industrial dermatitis	Raynaud's disease	
Lichen planus	Septic neuritis	
Lupus erythematosus	Simple peripheral neuritis	
Molluscum contagiosum	Spinal meningoradiculitis chronic)	
Morphea	Syringomyelia	
Psoriasis	Tumors of spinal cord	
*Sarcoid (especially Boeck's)		
Sarcoma cutis		
Scleroderma		
Sporotrichosis		
Tuberculosis cutis		
(including lupus vulgaris)		
<i>Conditions Not Known to Occur in Hawaii</i>		
Leishmaniasis		
(American leishmaniasis and oriental sore)		
Pellagra		
Pinta		
Yaws and Gangosa		
* These are clinical, not etiologic, entities. They may be caused by tuberculosis, syphilis, other infections, or leprosy.		

able sources, the conditions which may be confused with leprosy are numerous. The more important differential points will be discussed later.

Points to Bear in Mind:

- (1) In lepromas, bacilli *must* be found. In tuberculoid "macules", a few bacilli may be found; more often in tuberculoid reaction.
- (2) Thermal anesthesia is present in practically all cases.
- (3) Anesthesia *or* *M. leprae* must be demonstrated to diagnose leprosy.
- (4) Regarding neural cases in general: leprosy symptoms are due to peripheral nerve lesions, those of most other major neurologic conditions (especially syphilis) to lesions of the central nervous system. This does not, of course, apply to the various forms of neuritis.
- (5) Uncomplicated leprosy often gives rise to positive Wassermann and Kahn reactions. There is no known serologic test which will differentiate leprosy from syphilis.
- (6) If there are reasons for suspicion, but a definite diagnosis cannot be made at once, the patient should be followed at intervals of three to four weeks, with repetition of bacteriologic examination if indicated, unless sooner confined for observation as a suspect.

Figure 3 is an outline for physical examination of suspects, a modification of the one used at the National Leprosarium at Carville, Louisiana. The use of this will be discussed in detail. If it is carefully followed, few if any definite cases of leprosy will be missed. For convenience, I use a copy on a small card as a check in routine examination.

The entire skin surface, including the soles, should be examined in good indirect daylight. Male patients should be naked. Women may be permitted a two-piece undergarment (shorts and brassiere) or similar arrangement, which can be moved as needed.

Fig. 3. General Outline for Examination.

GENERAL	
1. General health	8. Thickening of nerves
2. Nodules	9. Paralyzes
3. Macules	10. Loss of hair
4. Diffuse thickenings	11. Loss of perspiration
5. Anesthesia	12. Contractions
6. Ulcerations	13. Other deformities
7. Muscular atrophy	
LOCAL	
14. Eyes	19. Hands
15. Ears	20. Feet
16. Nose	21. Genitalia
17. Mouth and throat	22. Internal organs
18. Lymph nodes	
LABORATORY	
23. Bacteriologic examination	24. Biopsy

GENERAL EXAMINATION

(1) *General Health.*—It has been stated that the onset of leprosy is frequently accompanied by fever. (For example, see the definition of "Leprosy" in the American Illustrated Medical Dictionary.) In Hawaii such a case is worth reporting. Usually the onset is insidious, but the patient may present himself in a state of "lepra reaction", in which the temperature sometimes reaches 105 F. (40.5 C.), the patient is acutely ill, and skin lesions tend to exacerbate. Dis-

covering a case of leprosy in this condition is not early diagnosis.

(2) *Nodules (L)*—A "nodule", in the leprologic sense, is a nodular lesion or plaque of skin or mucous membrane, histologically a leproma, containing abundant Hansen bacilli. It is to be distinguished from the elevated tuberculoid lesion, which will be discussed under (3) "*Macules*".

Early "nodules" are single or multiple. They vary from pinhead size to a centimeter or more. They are usually intradermal rather than subcutaneous, but are well raised above the surrounding skin. The favorite sites are ears, alae nasi, cheeks, and forehead, but they may occur anywhere. However, it is unusual to find them below the chin until the disease is well advanced. They are usually of moderately firm consistency, but sometimes are almost stony hard. Bacteriologic examination is always positive (for technic see item [23] *Bacteriology*.)

During "lepra reaction" some patients develop crops of transitory nodules which appear to be due to bacterial embolism. This condition has been called "erythema nodosum leprosum". The nodes rise gently from the surrounding skin, may be extremely tender to touch, are bright red at first, later fading, and are unusually rich in bacilli. In some patients they have a tendency to ulcerate, and bacilli are easily obtained from the ulcers.

Bullous lesions, later ulcerating, have been reported, and are included in the records, but I have not seen them. In this type the fluid should contain lepra bacilli; but bullae may also be associated with neural leprosy, and may even be the first symptom. Such cases are rare in Hawaii.

Differential:

1. Nodular syphilids occasionally resemble leprosy; are easily differentiated by bacteriologic examination.
2. Neurofibromatosis may present a superficial resemblance; in the West Indies one patient with this disease was brought to me three times as a leprosy suspect. The lesions are generally pedunculated, and do not contain acid-fast bacilli.

(3) *Macules (Ns, Nt)*.—A "macule", in the leprologic sense, is a circumscribed skin area in which the pigmentation differs from normal, sometimes elevated above the surrounding skin in part or in whole. The term "leprid" is used as a synonym.

"Macules" may be of any size or shape, and may occur anywhere on the skin surface of the body except, perhaps, the hands and feet. The borders vary from sharply defined ridges to gradual fading into normal tissue. They are usually hypopigmented (pigment is never completely lacking), but may show increased pigmentation. They may or may not show anesthesia.

Leprids are of two types: Simple (*Ns*) and tuberculoid (*Nt*). These differ clinically and histological-

ly, but are not always clearly differentiated. Both types at times tend to spread peripherally, leaving an atrophic, hypopigmented center, and it is this which has caused the frequent diagnosis of "ringworm". Tuberculoid lesions are clinically more active, being raised, somewhat indurated, and usually, in light skins, of a red color which may become a deep scarlet. Thermal anesthesia (*item 5*) is generally, but not invariably, present in the atrophic center, and sometimes in the border.

A type known as "major tuberculoid" may at times be actually nodular. It is distinguished clinically from the lepromatous nodule by its smooth surface, usually deep red color, and scanty bacilli, if any.

"Tuberculoid reaction" is a special type of lepra reaction, in which tuberculoid lesions become more prominent and may closely simulate active "nodules". Constitutional disturbance is absent or slight. Bacilli are frequently but not invariably present, but not nearly so abundantly as in lepromatous nodules. This type of reaction tends to subside slowly over a period of weeks or months. Failure to recognize the condition has led to many glowing reports of therapeutic successes. In case of doubt, histologic study is of value.

Differential:

1. Tinea (pityriasis) versicolor does not really look like leprosy, but may be confusing, especially since the two conditions frequently coexist. Tinea versicolor shows hypopigmented patches, with a fine scaly surface; the scales may be scraped off and the causative organism (*Malassezia* [*Microsporum*] *furfur*) demonstrated. The patches are not anesthetic. Leprous macules are not scaly, and may or may not show thermal anesthesia, but anesthesia is usually demonstrable elsewhere.

2. Ringworm of various sorts with circinate lesions may closely simulate leprosy, but leprids of this type almost always show thermal anesthesia, frequently delimited sharply at the borders. Failure of any circinate "ringworm" to improve under treatment should lead to suspicion of leprosy—if suspicion has waited that long.

3. Vitiligo produces sharply demarcated areas of practically complete depigmentation, which are not anesthetic. This condition and leprosy frequently coexist in negroes, though this is less commonly found in Hawaii.

4. Many writers mention Boeck's sarcoid, said to be at times identical histologically and clinically with tuberculoid leprosy. Possible points of differentiation are involvement of nerve trunks, presence of anesthesia (by no means constant), and occasional presence of bacilli in small numbers in leprosy. Boeck's sarcoid is rarely diagnosed in regions where leprosy is endemic. I have not seen it in Hawaii.

5. Tuberculosis cutis may resemble leprids and may present scanty acid-fast bacilli. Look for apple-jelly nodules; test for anesthesia; and remember leprosy is more common in Hawaii. Dermatologic consultation may be required.

6. Numerous other skin conditions may closely simulate leprosy; at times consultation with a dermatologist is necessary. The presence of thermal anesthesia, on repeated examination if necessary, will clinch the diagnosis.

(4) *Diffuse Thickening (L, Nt)*. — Lepromatous tissue frequently takes this form instead of ap-

pearing in definite nodules; or nodules and diffuse thickening may appear in the same patient. Early thickenings are often found in the forehead, eyebrows and the area between, cheeks, chin, or ear lobes. Later, any part of the body may be involved.

As with nodules, these areas are loaded with bacilli. A diagnosis of leproma should never be made unless bacilli are demonstrated. At times senile wrinkling may closely simulate leprous infiltration in appearance.

Tuberculoid lesions may also be rather diffuse, but generally are distinguished by redness and well demarcated borders. In "tuberculoid reaction" the distinction is more difficult, as bacilli are usually present, sometimes in fairly large numbers; but this condition generally subsides in a few weeks or months, and no doubt remains.

Differential:

1. Erysipelas and cellulitis may simulate both lepromatous and tuberculoid thickening, especially when the latter is in reaction. In lepromatous thickening bacilli are always found. In tuberculoid reaction where the patient is usually not very ill, and shows little or no fever, bacilli may be absent. It is safer to treat any doubtful case (i.e., without anesthesia or organisms) as erysipelas, and then if it does not subside under treatment, leprosy becomes more probable.

2. Seborrheic dermatitis may resemble leprosy, and is frequently found in conjunction with it. The criteria of anesthesia and presence of bacilli again apply.

(5) *Anesthesia (N)*.—"A condition of total or partial insensibility, particularly to touch" (Gould's Medical Dictionary). This definition is offered to those who feel the word should not be used unless sensation is completely lost. I know no better term; "dysesthesia" to me suggests pain too strongly, and "hypesthesia" seems inadequate.

The development of leprous anesthesia follows a regular progression. First, the ability to distinguish heat from cold disappears. (Thus a patient may be unaware of the presence of a hot object and burn himself, yet the burn may be painful.) Next in order come loss of light touch, pain, and deep touch perception. Exceptions occur rarely, such as loss of pinprick discrimination before thermal and tactile anesthesia occur.

Since thermal anesthesia is first to appear, and is practically a constant finding in neural cases, diagnostic examination usually need not consider the other types (though an occasional case will call for complete checking even if thermal anesthesia is not found). Two test tubes containing water are used; one cold—preferably ice cold—the other hot, but not over 107 F. (41.6 C.), as one does not wish to test *pain* at this time. The patient closes his eyes (if malingering is suspected, a blindfold may be used, or hands tested behind his back) and he is asked to say "hot" or "cold" when touched. When the test is positive, some patients will guess, but wrongly;

others, perhaps more conscientious, will say, "I can't tell" or "I can't feel anything."

Light touch may be tested with a feather, a wisp of cotton, a fine camel's hair paintbrush, or a twist of paper. For pain sensation, a pin is used; an ordinary pin stuck through the end of a wooden tongue blade is convenient. The patient is touched lightly, and asked to call "sharp" or "dull." Sometimes one may draw the point of the pin lightly over the anesthetic area and see the patient wince as sensitive skin is reached. This may be of value in small children and mentally defective adults.

Anesthesia usually appears first in the area of the fingers supplied by the ulnar nerve (little finger and adjacent half of ring finger), and a little later the peroneal nerve area of the toes. Other nerves are soon involved, and the area of anesthesia spreads centripetally, sometimes involving the entire skin surface of the extremities and much of the trunk. Simple neural macules are typically, though not invariably, anesthetic; tuberculoid macules less frequently. Isolated areas of skin with no other clinical finding may also show anesthesia, but this is less common. Lepromas are sensitive unless found in an otherwise anesthetic area.

Differential:

1. Syringomyelia is a relatively rare condition which may be mistaken for leprosy, but the opposite error is probably more common. It is rarely diagnosed in regions where leprosy is prevalent. In this disease there is no nerve enlargement, and anesthesia tends to spread centrifugally—both evidences of central nervous system causation. Rarely the differentiation may be difficult.

2. Nerve injury may cause a very confusing picture. I have seen the young son of a leprosy father who showed anesthesia of the ulnar nerve region of one hand and contraction of the little finger, but gave a history of injury to the ulnar nerve at the elbow when beaten by his mother. Here the only choice was to watch for development of further symptoms.

3. Burn scars may be anesthetic, or by nerve involvement cause anesthesia and other trophic symptoms. But the burn may have occurred because of thermal anesthesia. Careful history is important, and testing of the area proximal to the scar.

(6) *Ulceration (L, Na).*—This is not strictly an early lesion, yet it may be the first sign which brings the patient for examination. Lepromatous skin is characterized by thinned and flattened epithelium, and is easily abraded and ulcerated. Ulceration is also frequent in lepra reaction. These ulcers abound in Hansen bacilli.

In neural cases, trophic ulcers occur in fingers and toes, especially on the plantar surfaces. They are usually associated with necrotic bone and will not heal until the bone is removed. Bacilli are usually absent.

Differential:

1. Other types of ulceration will not be confused with the lepromatous variety if it is kept in mind that bacilli are always readily demonstrated.

2. *Tabes dorsalis* may produce perforating ulcers similar to those of leprosy. The presence of sensory disturbances including "shooting pains" in arms and legs further complicates the picture. In tabes, deep analgesia is more important than superficial; and true (spinal) ataxia does not occur in leprosy. The patellar reflex is not disturbed in early leprosy; later, it may disappear if the nerve supply to the patellar tendon is involved. History is important and, in doubtful cases, spinal fluid examination (which shows no changes in leprosy) is—if possible—conclusive.* (Remember that one does not expect to find bacilli in neural ulcers.)

(7) *Muscular Atrophy (Na).*—Wasting of the muscles of the thenar and hypothenar eminences is a common and fairly nearly sign. Later, the interossei of the hands, then of the feet, may be involved. Atrophy of larger muscles comes later.

(8) *Thickening of Nerves (N).*—Any major or minor nerve trunk may show enlargement, and at times nodulation. Actual abscess formation is said to be common in India and some other places, but I have not seen it here. The first nerve to be noticeably involved is usually the ulnar, which may be palpated behind the elbow as it passes between the olecranon and the medial epicondyle of the humerus, and frequently for some distance above. Flexing the elbow makes the nerve more prominent. While a normal ulnar nerve is usually palpable at this point, marked enlargement, nodulation, palpable enlargement well above the elbow, and production of paresthesias in the fingers by mild pressure are all suggestive of leprosy, especially if associated with anesthesia.

If physicians would make it a routine practice to palpate the elbow for the ulnar nerve, many early cases of leprosy would come under observation.

The great auricular nerve is frequently enlarged so that it becomes visible when put on a stretch by turning the head to the opposite side. It stands out as a smooth or knotted cord crossing the sterno-mastoid muscle from below and behind and passing up toward the ear. At times it may be palpated when not visible. Caution: the external jugular vein occupies a similar location, anterior to the nerve. In case of doubt, pressure on the vein will interrupt the blood flow, causing filling above and emptying below; pressure on the nerve has no effect unless it be to produce paresthesias.

The common peroneal nerve may be palpated at times as it passes around the head of the fibula.

While other nerves, notably the radial and posterior tibial, may be involved, routine check of the first three is usually sufficient in a diagnostic examination

Differential:

1. Certain forms of neuritis might be confusing, but these are sufficiently rare that they need scarcely be considered. As part of a general clinical picture, nerve enlargement with anesthesia is almost conclusive proof of leprosy.

* I have found no reference to examination of cerebrospinal fluid in leprosy. Theoretical considerations and my own limited experience indicate that no abnormalities are to be expected.

(9) *Paralysis (Na)*.—Paresis of either or both eyelids is a relatively early symptom. This may be manifest as a drooping lower lid (with the sclera showing below the iris) or by inability to close the eye completely. In the latter case the patient tends to roll the eye upward when he attempts to close it, so that the cornea is covered by the upper lid; paralysis of the eyeball muscles occurs rarely, if ever.

Later, there may be general paralysis of the facial nerve, frequently unilateral; and wrist or ankle drop.

Differential:

1. In Hawaii, wrist or ankle drop suggests leprosy rather than lead poisoning. Differentiation is not difficult.

(10) *Loss of Hair (L)*.—Infiltration of the eyebrow ridges results in thinning of the brows, usually starting with the outer portions. This may be a very early sign.

Scalp alopecia is less common, but does occur, especially in patients of Japanese ancestry. It is patchy in distribution at first, with a tendency to spread.

Differential:

1. Syphilitic alopecia must be considered, but the lepromatous infiltration is usually definite and bacilli can be demonstrated.

(11) *Loss of Perspiration (Na)*.—Anesthetic areas, and at times others involved in the polyneuritic syndrome, may cease perspiring due to the lack of nerve impulses. This, when it can be demonstrated, is a useful corroboratory sign, but its absence is not significant.

(12) *Contractions (Na)*.—Contracture of fingers, later of toes, may occur relatively early. The little finger is usually first involved (ulnar nerve again). At first the fingers can be straightened passively without much difficulty; later the contracture becomes permanent and bony deformity follows. Early contractions are usually in the line of normal flexion, but bizarre extension and lateral deformities may occur later.

Suspect any contracted or shortened finger or toe, and if it is associated with anesthesia, regard it as leprosy unless proved otherwise.

(13) *Other Deformities (Na, L)*.—Bone lesions primarily due to leprosy are limited to hands and wrists, feet and ankles. Most are of neural origin, and are considered "trophic"; the exact pathogenesis is unknown, but vascular disturbances are probably important. Actual lepromas of bone marrow are said to occur rarely.

Absorption, first of phalanges, then of metacarpals and metatarsals, causes shortening of digits and may leave hands and feet mere stumps. Digits do not, however, drop off, as is popularly believed. There may be ulceration with bone necrosis, and frequently surgical amputation is used to relieve a distressing sit-

uation; but one often sees shortened fingers still bearing distorted nails.

Almost any sort of bone change may be found by x-ray, but three forms are most common:

1. Proliferative, then destructive lesions of joints, frequently but not always associated with contracture. These are painless, because anesthetic; they have no diagnostic value.

2. Gradual thinning of the shafts of long bones, eventually to the point of disappearance, when the two ends remain as sharpened points, which later are absorbed, except for the proximal ends of metacarpals and metatarsals (Figure 4).

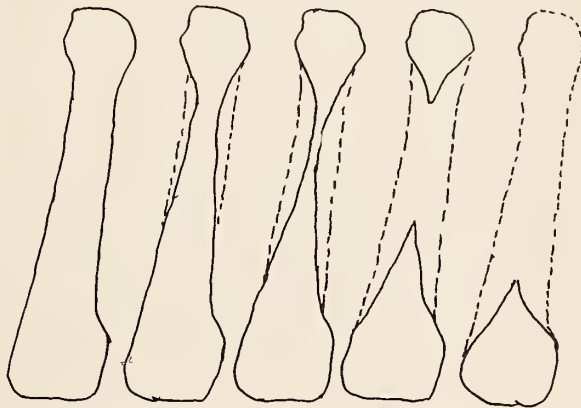


Fig. 4 Bone absorption of a metatarsal (semi-diagrammatic).

3. Charcot joint: ankle or distal bones of tarsus. Roughening, thickening, and other deformities of the nails are common with or without shortening of digits.

In the male, enlargement of the nipple, usually a lepromatous infiltration with or without gynecomastia, is a common but not very early change.

Differential:

Bony change of the second type is almost diagnostic. Any partially absorbed long bone of the hand or foot, especially if the remnant is pointed, should arouse suspicion of leprosy.

Remember that leprosy destruction of bone does not go above the wrist and ankle.

Note: Any other deformity, whether due to leprosy or not, should be included in the report of physical examination of suspects.

LOCAL EXAMINATIONS

(14) *Eyes (Na, L)*.—Lid paralysis has been mentioned (*item 9*). This may result in an exposure keratitis leading eventually to blindness.

A specific irido-kerato-cyclitis is common. Unless promptly and vigorously treated, this results in serious pupillary adhesions and even occlusion. Repeated attacks cause gradually increasing corneal opacity.

Actual nodulation may occur, starting at the sclero-corneal junction and spreading across the cornea.

In the two latter conditions, bacilli may be found in the conjunctival secretions.

Differential:

1. Syphilitic and leprosy iritis may be similar. Presence of *M. leprae* is conclusive.

Caution: The irregular fixed pupil resulting from untreated iritis may simulate tabes.

(15) *Ears (L)*—Always inspect the ears from behind. Early nodules and thickening may be thus noted which otherwise would escape.

The ears are the commonest site of early lepromatous changes (*items 2 and 4*). Later, the lobes may become pendulous. There is no specific change in the middle or inner ear, but many patients show chronic otitis media, possibly secondary to pharyngeal involvement.

It is stated by many that bacilli may sometimes be found in ear lobes which appear normal. I have not confirmed this finding.

(16) *Nose (L, N)*.—The skin of the nose is a common site of early lepromatous change (*items 2 and 4*).

The mucosa of the septum is frequently the first place in which bacilli are found, sometimes with no gross lesions apparent. At times they are found in the nasal mucus, especially if ulceration is present. Caution! *Acid-fast bacilli other than M. leprae are sometimes found here.*

In the nose⁴ one sees reddening, swelling, sometimes nodulation, epistaxis, then ulceration, with formation of adhesions and eventual obstruction, if untreated. Absorption of septal cartilage occurs, with or without perforation, but the bone is only occasionally involved secondary to extensive spreading ulceration.

Differential:

1. Perforation of the bony septum occurs in syphilis, giving the characteristic "saddle nose"; in leprosy the cartilage is involved, which causes flattening of the tip of the nose while the bridge remains.

(17) *Mouth and Throat (L)*.—Thickening and nodulation of lips, tongue, and palate are common, but relatively late, lesions. Still later comes ulceration of the soft palate, sometimes with perforation of the cartilage or adhesions to the posterior pharyngeal wall. (As in the nose, bony perforation suggests syphilis.)

Leprosy laryngitis is a common, but late, sign. The symptoms are hoarseness, later dyspnea, but no pain.

Differential:

Syphilitic ulceration of the soft palate, with adhesions, may closely simulate leprosy. But leprosy lesions of this

type are relatively late manifestations, and ample evidence of the disease should be present elsewhere.

Tuberculous laryngitis is painful, and the patient will usually show other evidence of tuberculosis.

M. leprae is demonstrable in mucous membrane lesions.

(18) *Lymph Nodes (L?)*.—Inguinal nodes are quite commonly palpable. It is possible that node puncture might yield bacilli when other methods fail, but I have not found it necessary to resort to this; and the possibility of tuberculosis must, of course, be considered. Enlargement of the epitrochlear node is also common.

(19) *Hands (Na, L)*.—Anesthesia, ulceration, muscular atrophy, wrist paralysis, contractures and other deformities are all common (*items 5, 6, 7, 9, 11, 12*). Nodules on the hands are usually late manifestations.

A generalized skin swelling, sometimes limited to the fingers, is common and early. This may be the first symptom noted by the patient.

Get an x-ray if deformity is present, and submit it with the report.

(20) *Feet (Na, L)*.—All the changes found in the hands may occur, but contractures are less common. Be sure to examine plantar surfaces for ulceration, which may occur surprisingly early.

(21) *Genitalia (L)*.—I have not observed leprosy changes in the female genitalia, but they have been reported by others. Involvement of the ovaries has not to my knowledge been demonstrated anatomically, although amenorrhea, temporary or permanent, is common in advanced cases.

In the male, lepromatous thickening and nodulation are common, especially on the prepuce and scrotum. Later there is leprosy orchitis, followed by atrophy of the testicles.

(22) *Internal Organs. (L?)*.—The only clinically recognizable internal lesions are enlargement of the liver, later of the spleen. As a rule these are relatively late. However, general examination should not be omitted, as it may furnish a clue to conditions other than leprosy which require consideration.

LABORATORY EXAMINATIONS

(23) *Bacteriology—The Bacillus*—The organism generally accepted as the cause of leprosy is *Mycobacterium leprae*, discovered by Armauer Hansen in 1870, and commonly referred to as the "Hansen bacillus". It is an acid-fast rod which closely resembles *M. tuberculosis* in morphology and staining characteristics; in fact, they often cannot be distinguished except by culture—*M. tuberculosis* will grow on artificial media (we use Petragnani's) and in guinea pigs; *M. leprae* will not.

In general, the Hansen bacillus is more easily stained and more readily destained than the tubercle bacillus. Fix the smear by heat, cover it with Czapslewski's carbol-fuchsin (Ziehl-Neelsen's will do), heat until it steams, then leave for five minutes. (Many prefer to stain for 20 minutes at room temperature.) Destain with one or two washes of 20% sulfuric acid, counterstain with Loeffler's methylene blue. Thick portions of the smear will not be destained, but these are ignored.

The Hansen bacillus tends to be shorter and straighter than the tubercle bacillus. A rod will often show 3 to 4 granules, especially in old lesions. The organisms are often clumped together, especially in the arrangement considered by some to be diagnostic of leprosy, the globus⁵. This is a rounded mass of bacilli varying in diameter from 10 to 100 microns or more. Apparently there is some sort of retaining membrane, although this has never been seen. The larger globi rarely show the neatly circular outline of the smaller ones, presumably because this membrane has been ruptured in the process of making the smear.

As yet, no satisfactory method of artificial culture has been found, either in vitro or in laboratory animals. In fact, deliberate attempts at human inoculation have succeeded but rarely.

To any interested physician or laboratory in the territory, I shall be glad to furnish unstained slides known to contain *M. leprae*. Stained specimens fade too rapidly to be of value.

Methods of Examination. For a long time the favored method was a smear of nasal mucus taken on an ordinary cotton swab. This has value only as a preliminary study. A positive smear should not be accepted in the absence of clinical evidence of leprosy, since non-pathogenic acid-fast bacilli are sometimes present in the nose. (These can be cultured on artificial media.) A negative smear is worthless; yet I have known advanced neural leprosy to remain undiagnosed because no bacilli were found on a nasal smear!

We seek the organisms where it seems likely they will be found. In lepromatous cases this is easy; nodules and thickened skin are rich in organisms, and they must be demonstrated for a diagnosis. I use Wade's method⁶ of making a small incision—about 5 mm. long and 2 mm. deep—with a pointed scalpel (by preference a small, double-bellied blade, sterilized by flame). Some use a new razor blade. The blade is turned sidewise and a little tissue scraped from the bottom of the incision and spread on a new glass slide. Bleeding is avoided if possible, but it is not difficult to see the bacilli in the presence of blood.

This is properly known as the "scraped incision" method. It is *not* a "snip" (a nip is a bit of skin removed with scissors or scalpel, like a spot graft);

but the term "snip" has been given such general usage in Hawaii, among both physicians and patients, that we must continue to use it. Who started this? (Perhaps "smear" would be a usable compromise.)

In neural cases, bacilli may be found in the active edges of macules, or in the nasal mucosa, or they may never be found—but the last does not rule out a clinical diagnosis. Tuberculoid cases are somewhat more likely to show bacilli, especially during a reaction (which may occur as a local manifestation without fever).

Mucous membrane lesions occur in both types of leprosy, and in some neural cases are the only sites from which bacilli can be obtained, if at all. Complete inspection is required with adequate lighting. If there is actual ulceration, a swab may suffice. (Some prefer to moisten the swab with normal saline solution before use.) In the many cases where the lesion seen is mild turgescence with possibly slight erosion, it is essential to investigate that spot, scraping with a sharp bistoury or curette, or a semisharp Freer submucous elevator⁴. Try to avoid bleeding by preliminary pressure on the spot, but be prepared for temporary packing if required. In mucous membranes the bacilli are close to the surface, so mild scraping usually suffices to demonstrate them if present. If no lesion is seen, scrapings may be made from the anterior portions of the nasal septum and the presenting parts of the turbinates. This should be done to every suspect in whom bacilli have not been found elsewhere.

It must be emphasized that in most purely neural cases bacilli will not be found, or they may be present at one time and absent at another in the same area. In such cases, if the clinical diagnosis is in doubt, biopsy may be helpful.

(24) *Biopsy.*—Biopsy is a last resort for diagnosis, and few if any pathologists, however skilled, would be willing to condemn a patient to the life of a leper on the basis of histologic findings alone, unless bacilli were demonstrated in the section. It has value as confirmatory evidence, or as a means of seeking scanty bacilli. For this purpose Fite's method of staining⁷ is useful.

SUMMARY

Leprosy may find victims from among any race, sex, age (except early infancy), social condition, or occupation. Those most likely to be attacked are Hawaiian or part-Hawaiian school children, or young adults of average living standard or below, who have been in contact with known lepers or are members of their families.

Every physician in Hawaii should maintain a high index of suspicion for leprosy, know what to suspect and how to confirm his suspicions. A method of procedure is presented which I hope will be of value.

Not every case of early leprosy can be diagnosed by a single examination. Every suspicious case should be reported to the local health officer and carefully followed.

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"Kissing Bug Bites"

HARRY L. ARNOLD, JR., M.D., AND DOUGLAS B. BELL, M.D.

Honolulu

Although the bug whose "bite" occasions this report has been known in Hawaii for over forty years¹, we have been unable to find any recorded instance of its attacking human beings. Because such attacks may be more unrecognized than rare, and because they are puzzling if their cause is not realized, our two cases are being reported.

REPORT OF CASES

CASE 1. Mrs. E. R., a housewife, consulted one of us (D. B. B.) on March 28, 1943, because of 6 elevated red lesions, 1 to 3 cm. in diameter, on the inner aspect of the right forearm. These had awakened her by itching and burning early in the morning, and had later become reddened, swollen, and painful. At the time she was seen, a few hours after awakening, lymphangitis and axillary adenitis were present. The temperature was normal. After about three days the process subsided and the swellings disappeared.

On April 8 she returned with a painful, bluish-red swelling of the distal phalanx of the right fourth finger which had kept her awake all night. A small incision in the area produced free bleeding, but no pus. The pain and throbbing were relieved following the incision, and the swelling subsided. A reddened area on the dorsum of the middle phalanx could then be identified, which looked like the site of an insect bite.

The following day she returned with a red, painful, elevated lesion above the right eye, and redness and swelling of the eyelids on that side. On that day the patient was able to find and kill, in her bed, a large bug which was identified by C. E. Pemberton, entomologist at the Hawaiian Sugar Planters' Association Experiment Station, as *Triatoma rubrofasciata* (DeGeer).

CASE 2. Mrs. C. W., housewife, was seen by one of us (H. L. A., Jr.) on November 2, 1943 because of a painful, sharply outlined, elevated papule about a half inch (12 mm.) in diameter on the ulnar edge of the left hand. She said she had been awakened about 2 o'clock that morning by intense itching and burning in that area, and that the lesion had gradually become painful and swollen.

When she was examined, some eight hours later, there was a broad, bright red streak extending from the involved area to the axilla, and decided tenderness in the axillary area. The following day the swelling and pain were more marked, despite the use of hot hypertonic saline compresses and elevation of the arm, and an incision was therefore made in the succulent-looking plaque on the hand. Serum and a little blood were obtained. Forty-eight hours later the swelling had subsided and the redness was fading.

The patient admitted having seen bugs in her house which answered to the description of *Triatoma rubrofasciata*, and on the following day brought two live adult specimens to the office. Her home, like that of the first patient, was in Kaimuki, a dry, moderately elevated residential district on the southeast edge of Honolulu, behind Diamond Head crater.

DISCUSSION

Triatoma rubrofasciata (DeGeer) was first described by that author in 1773 as a *Cimex*². It is a member of the Reduviidae, whose habits are well described by the lay names of *assassin bugs*, *cannibal bugs*, and *pirate bugs*³; whose appearance is well suggested by the lay name *conenoses*; and whose methods of attack may be inferred from the names *Mexican bedbug*, *giant bedbug*, or *kissing bug*.

The last of these nicknames—"kissing bug"—is the most expressive of all. It has reference to the fact that the bite is usually inflicted on exposed portions of sleeping victims—frequently, therefore, on the face, and, as often as not, the lips⁴. Moreover, it is apparently virtually painless at the moment—again, not unlike a kiss! It is only after the animal's withdrawal that itching and burning develop*, and still later that the painful swelling supervenes, along with lymphangitis and lymphadenitis.

A "kissing bug" scare swept the eastern part of the United States in 1898. It was apparently caused by newspaper accounts of a number of cases of bites inflicted by *Melanolestes picipes* and *Reduvius personatus*, which are members of the Reduviid family³. A similar scare occurred in Cincinnati a few years later.

Beside the discomfort and disability which result from the bite, the Reduviids are important vectors of American trypanosomiasis—Chagas' Disease—in South America. Herms⁴ says that over 20 Reduviid species are able to act as vectors for *Trypanosoma Cruzi*. The method of transmission is by defecation and subsequent rubbing (by the victim) of the infected feces into the itching bite. Armadillos, opossums, some monkeys, and even cats and dogs are listed as potential or actual animal reservoirs.

Triatoma megista and *Triatoma sanguisuga* (LeConte) are apparently the commonest Reduviid species elsewhere; only *Triatoma rubrofasciata* has been described in Hawaii. Kirkaldy¹ states that it probably reached Hawaii from California, having come by way of the Antilles from Brazil. It is also to be found in Madagascar, where it has been suggested⁶ that it may act as a vector in the transmission of kala-azar.

Triatoma rubrofasciata is easily recognized (Fig. 1). It is dull black in color, from one-eighth inch

* We have since been informed that the pain may occur immediately instead of being delayed.

(3 mm.) long when newly hatched to almost seven-eighths of an inch (20 mm.) long when mature, and approximately teardrop-shaped. The slender, sharp-pointed stinging proboscis is carried by the living bug folded sharply backward in a groove under the head, so that it is almost invisible. In the illustration



Fig. 1. Adult specimen of *Triatoma rubrofasciata* (DeGeer). Note the long, sharp-pointed stinging proboscis, and in particular the pattern of markings along each edge of the back.

it has been pried forward to make it show. There are 6 jointed legs. The edges of its back are decorated with a series of dusky brick-red markings a millimeter or so broad and slightly longer than they are wide—hence the “*rubrofasciata*”, or “red-banded”.

Although both of our reported cases lived in Kaimuki, and widespread inquiry among nurses, physicians and the laity suggests that *T. rubrofasciata* is commoner there than elsewhere in the city, it is widely distributed. It has recently been found in Manoa valley, the climate of which has little in common with Kaimuki, though the elevation is comparable.

SUMMARY AND CONCLUSIONS

A “kissing bug”, *Triatoma rubrofasciata* (DeGeer), occurs in Honolulu.

Two cases of bites inflicted on humans by this bug are reported.

The bite produces a clinical syndrome strongly suggestive of cellulitis with lymphangitis and regional lymphadenitis; areas of the body exposed in sleep (face, arms, hands) are most likely to be affected.

Shallow incision of the swollen bite-site seems to have a favorable effect on the course of the symptoms.

The bug's presence in Hawaii constitutes a public health hazard, since it is an important vector of American trypanosomiasis.

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The Clinic, 881 South Hotel Street
Dillingham Building

C. E. Pemberton, Entomologist with the Hawaiian Sugar Planters' Association Experiment Station, assisted materially with the bibliographic material and loaned the mounted specimen for photographing. Dr. I. L. Tilden, of The Clinic, made the photograph.

Industrial Hygiene in Hawaii

A REVIEW OF THE INDUSTRIAL HYGIENE PROGRAM OF THE BOARD OF HEALTH

FREDERICK L. SCHRAMM

Honolulu

If we examine the history of industrial hygiene previous to the 1936 expansion we will find that the chief function of the industrial medical department was the treatment of traumatic injuries, with a gradual expansion to the medical phases of the problem. Then functions as pre-employment and periodic physical examinations, job placement and, more recently, medical and engineering control of occupational diseases began to take their rightful places in industry and government. Where, in the past, attention was mainly directed toward the improvement of machinery, recent activities are toward the economic waste resulting from failure to provide protection against controllable health hazards.

In the modern practice of industrial hygiene at least two main types of services are required—medical and engineering. The medical department concerns itself with the person, his hygiene, diagnosing diseases and primarily recognizing the existence of illness due to the working environment, while the engineer deals mainly with the environment. He makes an analysis, based either on the physician's findings or on independent studies, of conditions which may be detrimental to health and, determining the extent of the hazard, he considers methods for control or minimizing these.

Industrial medical and engineering services have in recent years concentrated a great deal of effort toward establishing the maximum concentration, or borderline, of safety for various circumstances. It was learned in the course of these studies that occupational health hazards may be divided into two main groups: those which result from contact with toxic substances, and those caused by adverse conditions.

In the potentially harmful substances group would be included dusts, gases, vapors, fumes, mists, certain solids and liquids and infective materials.

The second group, or potentially harmful conditions group, includes hot, cold and humid conditions, excessive light and heat, compressed air, confined air, confined positions, fatigue, eye and ear strain, irritation to the skin and questionable sanitary practices.

In certain respects the relative relationship of the two groups may increase the possible detrimental effect of the members of either.

The mode of entry of harmful substances into the body was learned also to have a major bearing on the subsequent damage to tissue.

Ingested matter may exert local action on the mouth and digestive tract, or, if devoid of such action, may be absorbed in the intestines in varying amounts, depending on its reaction with the enzymes present, as well as the food and its by-products. A relatively large portion of absorbed matter may pass into portal circulation and in some instances be satisfactorily handled by the liver.

When inhaled, some toxic substances pass into general circulation and are distributed to the heart and central nervous system with great rapidity. They can produce either a general toxic action without harm to the respiratory tract or a mixed effect, generally toxic and locally irritating. A few irrespirable vapors act so violently on the upper respiratory tract and lungs that their general toxic effects are secondary considerations. Therefore, under ordinary circumstances in industry, a substance is far more dangerous if inhaled than if ingested.

Skin contact is the third principal means of effect. Some airborne substances condense or collect on skin surfaces with which they come in contact, especially if such surfaces are moist. Thus they may collect on the skin of the worker or be found on clothing in quantities far greater than in the air. Their toxic effects are generally produced without warning of exposure. If fat and water soluble, they may be absorbed through intact skin.

Most of the toxic substances which can become airborne in industry are without odor and are not normally visible. The use of appearance or odor as a criterion for estimating the concentration of a given vapor, dust, gas or fume in the air is not practical; it often leads only to a false impression as to the safety being provided. Even with decidedly odorous substances, such as chlorine and hydrogen sulphide, the absence of odor cannot be counted on in judging the possible chronic effect. Prolonged contact with amounts above the level of safety often causes the olfactory nerve endings to become blunted and the obnoxious odor so strongly perceptible in lower concentrations is then no longer even faintly noticeable.

As to dusts, those breathable to the extent of entering the lungs lie in the field below the 10 microns size. These are not visible as individual particles even in a good light. Separate particles are noticeable only where the diameters exceed 50 microns.

Through the cooperative effort of research groups engaged in industrial hygiene activities, criteria have now been established on a sound epidemiologic basis which preclude, if maximum standards are not exceeded, the development of an industrial illness in a normal person.

PROGRAM IN HAWAII

To determine the need for an industrial hygiene program in Hawaii, a preliminary study was instituted in 1939. A brief survey of each industry was made with an analysis of the findings, which included type of substances utilized, possible by-products, handling methods, protective measures, sickness and absenteeism records, provisions for medical attention, labor turn-over, light and ventilation, sanitary practices and sanitary facilities.

Altogether, this cross-section involved 10,000 of Honolulu's established 64,000 workers. Over four hundred types of potentially harmful materials or conditions were recorded. Many speed-up or short-cut methods recorded on the mainland were noted to be on the increase in Hawaii.

Persons not familiar with the findings of this survey might be inclined to believe that Honolulu does not have in regular use many of the sickness-producing substances evidenced in the reportable illness index of many mainland states.

One such substance is free silica, the causative factor in silicosis. Our survey indicated that even then, in 1939, 1,987 persons came into intimate contact with substances containing this type of silica. These were in such occupations as denture grinders, foundry workers, pottery makers, tombstone cutters, metal polishers, sand blasters, machine shop workers using silicon carbide cutting instruments, quarry workers and many others. As regards local quarries, our laboratory studies, confirmed in part by the U. S. Geological Survey, indicated that the prevalent local idea that free silica is not to be found in rock here is erroneous. Some areas were found to be without silica in this uncombined state; in one section, representative specimens have run as high as 18 per cent. This is but one of the many things we were told do not exist in the Territory. It would have been more accurate to state that no extensive native silica problem is probable here.

STAFF OF THE INDUSTRIAL HYGIENE DIVISION

A study of the information compiled indicated that a staff consisting chiefly of a public health engineer and two or more chemists would be best suited for the solution of the principal problems involved.

Following the recent inauguration of our program, industrial Hawaii began to undergo tremendous change, placing additional responsibilities on the Board of Health. In an attempt to keep pace (for there has been no budget increase to meet the growing need of this work), all avenues were explored which might assure reasonable protection to the working public. The Army gave aid to this problem by assigning personnel to us for training. These men work out of our office, spending about sixty per cent of their time on Army projects where civilian workers are employed.

Even with this assistance, the mounting problems at times cause us to fall behind in our work. Attempts are being made to further extend our program by utilizing the local field representatives of insurance companies. These men assist in the field sampling procedures, while our laboratory staff makes the analysis.

THE PROGRAM

The total Board of Health industrial hygiene program covers a broad field as to both the number of persons influenced and the benefits derived from its activities.

A few of the principal activities are enumerated here: (1) Our unit does all the industrial hygiene work for civilian projects, the U.S.E.D., many departments of the Army, the Office of Civilian Defense and many federal departments, and collaborates with the Navy. (2) The program is a proven means of control of many of the short-period occupational illnesses which would otherwise cause absenteeism. (3) It has, to date, protected thousands of workers from toxic substances in relatively small doses which in concentration, and on prolonged exposure, could result in disability later in life due to chronic industrial illness. (4) Where needed, if protective equipment was not available, we assisted in improvising it. (5) Properly practiced, this program will help to prevent the transfer of the results of occupational illness to offspring at birth. (6) The program assists in preventing accidents both on and off the job by assuring that the worker's mind remains alert and that muscular weakness and lack of coordination, delayed reaction time and impaired judgment are not present to play a contributing part. (7) Our men and equipment are in constant demand by military and civilian forces where immediate and unforeseen emergencies occur which may affect the health of workers rushed to the site. This happens more often than most people would realize. (8) The program is a definite morale builder for workers on the job even where no health-affecting hazards are found.

In our dealings with industry and the military to date, we have been most fortunate. They accept our work for what it is—an educational and correctional program.

Our field studies have covered 171 different types of substances, beginning with acetone and ending with zinc. There were 27,047 persons involved in these examinations. Of these, 14,281 were working under conditions which necessitated modification.

Since the beginning of the program in 1940, we have made 2,187 laboratory tests, including both chemical and bacteriological studies, 543 illumination studies, and 996 separate field instrument checks in regard to ventilation. We have provided solicited information in 361 industrial engineering or chemistry problems and reviewed 97 sets of plans for new construction or major renovation.

Even here in Hawaii, with its geographic advantages of constant mild climate and negligible seasonal variation in sunlight intensity, it is often noted that too great restrictions are placed in the path of the natural functioning of these assets. Along with our regular work we are presently recording information upon which to base suggestions to those engaged in the design or maintenance of industrial housing which we hope will lead to greater utilization of these natural elements. To date, about 65 per cent of the industrial illness possibilities found were due either to inadequate light or to improper ventilation.

Today industrial hygiene needs to be practiced more vigorously than ever before. Production speed-up requires that short-cuts around known safe methods be taken to conserve time. Shortage of key chemicals or materials has occasioned the return of toxic substances once set aside by industry as too hazardous for normal use, or these shortages have led to the development of new raw materials, the harmfulness of which has not been fully investigated.

During World War I, although industrial health hazards were many, they were principally due to processes involving metals, acids, alkalis and asphyxiants. The solvents utilized at this time were few and simple in structure, such as benzene, naphtha, petroleum, ether and the like, and relatively harmless as compared with the coal tar and complex petroleum derivatives now in general use.

The primary requisite of a modern solvent is that it act quickly and strongly on oils, fat, grease, gums, lacquers and all other coatings, and then dry quickly. Both these properties present great danger to the worker, for such a solvent has affinity for the fats in the human body and when it reaches the blood

stream, makes for the fatty substances in the nervous system.

In modern industry, while the other hazards are still present, volatile solvents are the greatest single problem in occupational health.

As the lack of man power becomes more acute, the scope of the total industrial hygiene program is materially broadened. New workers on unfamiliar jobs is but one of the newly added problems.

MEDICAL PROFESSION'S PARTICIPATION

In order to develop further the general structure of the present industrial hygiene program for the Territory, we would like to offer assistance to the medical profession in tracing down the possible sources of illness in industrial cases, as far as our limited personnel and equipment will allow. When conditions return to normal, the physicians in turn could perhaps aid us.

In the Territory there exists at present ample machinery for reporting mortality statistics. More specific data could be recorded to ascertain occupational activity where excess mortality may be especially noticed.

Even when this may be adequately practiced, mortality statistics, although useful and important, have their limitations. They do not offer information concerning sicknesses that do not terminate fatally. Sydenstricker and others have shown a striking contrast in the picture afforded by sickness as compared with death records. This was evident even in the peace-time period when their work was accomplished. They have shown that the nationwide ratio of respiratory illness to deaths from respiratory causes averages more than 300 to 1; that diseases and disorders of the digestive system averaged about 200 cases to 1 death. For more adequate knowledge of the health status of industrial workers mortality data should be supplemented by records of sickness. The principal reliable source of such information would necessarily have to be the doctors.

While national and regional reports of accidents, industrial diseases, and high occupational death rates appear to be impressive, the less dramatic side is probably by far the more important, namely, the lost time and incapacity due to illness. The vast amount of wasted energy and life due to preventable illness, a sizeable proportion of which may be contributed by the working environment, presents a problem in need of our serious attention.

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EDITORIALS

ATTENTION, ALL DOCTORS!

Complete details of the Emergency Maternity and Infant Care Program of the Children's Bureau of the U. S. Department of Labor appear, beginning on Page 241, of Issue No. 4, Volume 124, of the Journal of the American Medical Association (January 22, 1944). Every doctor who is interested in his profession should read, thoroughly digest, and form an opinion regarding this extraordinary document.

FEDERALLY FINANCED OBSTETRICS

The bewildered witness of whom the cross-examining attorney demanded a Yes or No answer to the question, "Have you stopped beating your wife?" was in no more of a spot than the obstetrician and pediatrician fractions of the medical profession in their contemplation of the Emergency Maternity and Infant Care Program of the Children's Bureau of the United States Department of Labor.

The plan provides for free obstetrical and pediatric care for the wives and infants of all members of the United States Army, Navy, Marine Corps, or Coast Guard, if in the 4th, 5th, 6th, or 7th pay grades. Such service is to be supplied by personnel of hospitals of the United States Army, Navy, or Public Health Service when such is readily available, *and by private practitioners, clinics, or hospitals when such is not.* Private practitioners, clinics, and hospitals are to be paid for their services at rates arbitrarily fixed by the Children's Bureau.

Disapproval of the Children's Bureau plan lays the medical profession open to the charge—false though it obviously is—that doctors are callous to the needs of the wives and children of service men, that they are hard-hearted, money-chasing individuals who would line their pockets at the expense of the soldiers' and sailors' loved ones.

Compliance with the plan, on the other hand tantamount to public endorsement of questionable procedures in medical practice of which few responsible members of the profession approve, and which the majority believe may lead to deterioration of obstetrical and pediatric standards throughout the nation.

The cross-examining attorney's embarrassing question has long been quoted as an example of surgical practice.

The E.M.I.C. program, ostensibly for the benefit of the wives and children of service men, but potentially a "foot in the door" for state medicine on a broader, grander scale, would appear to be in the same category, especially if the manner of its formation and presentation is scrutinized.

It seems regrettable that a profession whose recognition of its fundamental obligations to humanity, rich and poor alike, is traditional should be put in a position of having to argue its concern for the welfare of the wives and children of men of our armed forces. To make the medical profession do so is an effective device—and a slick one—to draw attention from the features of the E.M.I.C. plan which are startling to the least—even tragic if they are the signs of what is to come.

For there is something startling about a gov-

ment bureau offering gratis to a considerable block of the nation's population something it doesn't have title to, in this instance, the services of obstetricians and pediatricians in private practice.

It is somewhat startling to learn that the doctor's recompense, set by the government bureau and to be paid for by the government, is a sum arbitrarily fixed and limited, without consulting the sellers of such services and without regard to whether the figure is above or below cost.

It is even more startling when the obstetrician or pediatrician discovers that every service man's wife who receives a dependency allotment has been notified that his (the doctor's) services are available free, to her and her babies, and that the doctor who cares for her and her children will receive from the government a fixed fee which may fall far short of equalling his own expenses incident to such service.

No one—and least of all members of the medical profession—would argue that the best of obstetrical and pediatric care (as well as all other measures conducive to their welfare and well being) should not be available to dependents of service men.

There is no reason to believe that such services would not be available to them in most instances through ordinary existing channels with or without the "emergency" plan of the Children's Bureau.

Certainly no one would object to the Army and Navy taking care of their members' dependents with their own doctors and hospitals in so far as such is possible.

Nor would many object to the Government giving aid to defray or help defray the cost of obstetrical and pediatric services where such services are not available from Army and Navy sources.

But the character and quality of obstetrical and pediatric services become jeopardized when the Children's Bureau by bureaucratic edict, in effect, orders private individuals in obstetric and pediatric practice to take care of these beneficiaries at less than it costs to give the thorough, efficient services that the profession's standards demand.

Approval *can* be given one aspect of the scheme: its intention to see to it that the wives and dependents of service men do get adequate obstetric and pediatric care. With that motive physicians can have no quarrel. Regardless of their natural unwillingness to be forced on a federal payroll, and regardless of the inadequacy of the proposed fees, this motive must be a guiding principle for the profession in whatever course of conduct its members pursue. The fee is inadequate to cover the costs of the services; for many it will likewise seem inadequate recompense for the loss of self-respect entailed by entering the vanguard of state-employed "private" practitioners; *but be that as it may, the best obstetric and pediatric care*

available must and shall be rendered to the wives and dependents of our soldiers, sailors, coastguardsmen and marines.

PROCUREMENT AND ASSIGNMENT

Thirty-five doctors of Hawaii must shortly make the choice between voluntarily seeking a commission in the Army or Navy, or being drafted.

That so large a number of doctors of military age are still among us and not in uniform appears to have cast reflections upon the physicians of Hawaii as being derelict in their duty and in their patriotism.

Time and the shifting of the theater of war has effected many changes since the 7th of December 1941, and it is in the light of these intervening events that the position the doctors find themselves in today should be considered.

In the anxious months up to the beating off of the Japanese fleet at Midway, this area was considered a front line of defense, and the private physicians were regarded by the military as an indispensable adjunct, in case of need, to the military medical personnel then stationed here. Following the attack on the 7th, here as elsewhere throughout the country, many doctors came forward to join the service; however, they were made to accept the fact that their job, for the time being at least, was here on the home ground, without uniform.

Except for those in the naval reserve who were called during the period of declared emergency in June and September of 1941, and the Army reserves called in immediately following the 7th, the military has until now considered no applications from local doctors for commissions in either the Army or Navy. In the parlance of Procurement and Assignment, they were "essential" even though not individually so designated.

Gradually, as the war was pushed farther and farther from our shores, and medical requirements changed from emergency to rear line services, the need for a large stand-by group of private physicians diminished, so that now, as Procurement and Assignment turns its attention toward us, Hawaii stands by comparison with other communities in an unfavorable light, as if its doctors had intentionally and culpably lagged behind the mainland doctors in the prosecution of the war. Actually, this is not so; and moreover, the medical profession in Hawaii made a very praiseworthy showing in its civilian defense organization and its aid to the military on December 7th.

Following the recent visit of Dr. Frank H. Lahey, National Chairman for Procurement and Assignment for Physicians, to study availability of doctors from Hawaii, the local Procurement and Assignment

Board was set up, consisting of Dr. Forrest J. Pinkerton, Chairman, and Drs. Benyas, Hodgins, Pleadwell and Fred Lam. To this committee will be added an advisor from each of the outlying islands to assist in the administration of their assignment.

The appointment of Dr. Pinkerton as Chairman for Hawaii was upon the recommendation of the Council of the Hawaii Territorial Medical Association to the War Manpower Commission in Washington, and the selection of the four other members that make up the Board was made, with the approval of the Council, from physicians who were neither directly nor indirectly attached to a group that had draft-age members; who had neither relatives nor assistants of draft age as partners; who were above the age limit, and who in no way, directly or indirectly, could be charged with having some axe to grind.

Dr. Pinkerton, in the meeting called for February 24th, presented the problem to the physicians of Honolulu as follows:

We are told in an official communication that the bottom has been scraped for medical men in the United States and men must be found to make up a deficit of some 6000 men. Since the status of Hawaii has been changed, P & A has been activated to enlist as many medical men as this community can spare.

In the judgment of the Bureau at Washington, confirmed by Dr. Lahey, each community in meeting its own peculiar problems is necessarily influenced by geographic factors, economic considerations, customs and community prejudices. And so we have the onerous responsibility of making the decision as to how many physicians can be spared from Hawaii without curtailing the medical care of the community. That is the function of P & A, to wisely keep *from* the service the men "essential" to the community and wisely make "available" to the service the men who may be spared and considered nonessential to the community.

There are 104 physicians in the Territory of the draft age:

- 52 Caucasians
- 19 Chinese
- 29 American-Japanese
- 3 alien Japanese
- 1 Korean

These are distributed by islands as follows:

- 74 on Oahu
- 20 on Hawaii
- 6 on Maui
- 1 on Kauai
- 1 on Molokai (perhaps 2, if we count one who is not really eligible under Territorial law)
- 1 on Lanai

For ideal functioning, as far as medical care is concerned, a community should have a ratio of 1 doctor to 1500 population. On the Island of Oahu our figure is 1-1354; on Hawaii 1-1832; on Maui 1-2473; on Molokai 1-2670; on Kauai 1-2741, and on Lanai it is 1-3720. The over-all ratio for the Territory is 1-1554.

The Territory has already contributed 34 of its physicians to the armed services. Of this number 24 are from the Island of Oahu—7 Chinese, 2 Japanese,

16 Caucasians; from Hawaii, 1 Japanese; from Maui, 5 Caucasians; from Kauai, 2 Caucasians and 1 Japanese.

There were originally 345 physicians practicing in the islands, of which 6 were alien Japanese and detainees. On that basis Hawaii has contributed slightly less than 11 per cent of its medical population to the military services. If we adhere strictly to the 25 per cent for the over-all average of the United States, then Hawaii would be expected to produce another 50 physicians.

How many physicians can be spared from the Territory without seriously crippling the medical care of the civilian population? We have estimated this figure at 35 as a maximum.

The main object of the local P & A Board is to find out how many doctors, within the draft age or up to 45, are available for military service without seriously damaging medical service to the civilian population.

According to the classification that has been set up by Washington, and as it has worked on the mainland, every doctor within the draft age is automatically "available" under classification 1-A--(a) if not married, or (b) if married and maintaining a home with his wife, and (c) if married and maintaining a home with his wife and children. This classification goes up the scale depending upon the number of children. Children born after September 15, 1942 do not affect this classification.

Physicians of draft age are urged to make application for a commission in the Army or Navy at the following locations:

- Army: Office of Civilian Affairs,
Headquarters, Fort Shafter
- Navy: Naval Reserve Office,
Old Naval Station, Honolulu

When making such application it is necessary to have a certificate of availability from the local P & A Board. Such certificate may not always be granted; it depends upon the importance of the applicant's work in the community. If he happens to be "essential" to the community, P & A may adjudge that he be kept in the location sixty days pending procurement of another to take his place. At that time he will be declared "available" for military duty.

If an applicant fails to pass the physical examination for the Navy, that does not eliminate him from making application to the Army where he may be accepted.

If he is also disqualified by the Army he may remain on the available list for re-examination at some later date, or he may take the place of someone who is "essential" and wishes to be released to go into the service.

If a man has been marked "available" and wishes to appeal this decision, such appeal must go to the National Procurement and Assignment Service in Washington.

Procurement and Assignment has not only the task of supplying doctors to the Army and Navy, it has the problem of relocation also.

Several institutions in Hawaii need additional medical personnel. In lieu of a commission, a qualified man of draft age may be selected for a position in such an institution. If he waives this and does not choose to go into the service as a volunteer, he is subject to the draft.

Communications from Hawaii, Maui and Kauai indicate a need for relocation of physicians to the other islands. This has been somewhat contributed to by several doctors' leaving the other islands and coming to Honolulu to practice. At the time they did this it was their own affair, but now it is a matter of everyone's concern as to how these islands will be taken care of. In a city practice a doctor can take care of many more persons than in the rural set-up of the other islands.

We are advised that no doctors can be spared from the Island of Hawaii. On Kauai they need one more doctor; also on Molokai. The Island of Maui appears to be able to carry the load very well. In the opinion of the board, no doctor there is considered non-essential to the community.

So it seems we have a multiple task to perform: (1) to secure doctors for the Army and Navy; (2) to see that the community here is not damaged by sending "essential" men into the service; (3) to re-locate doctors from this island to the other islands, and (4) to see that certain institutions have more help, that would call for the relocation of a doctor, and it may be someone from the draft-age group.

DISCUSSION

COLONEL CLARENCE E. FRONK—You are all registered, from 21 to 64. Selective Service is only interested in those below 38. There has been no induction in the past two years in Hawaii but beginning next month there will be a monthly induction—500 will be called in the first month. The first to be in-

ducted will be the single men; second, the married men without children, and third, married men with children.

The local boards are the final authority as to who will be called. The national organization and the territorial boards are only advisory. We will look entirely to P & A service for our information on the physician-inductees.

It does not mean, because a selectee has been turned down once, that he will not be called again. One half of the 8,000 registrants in Class 4-F have been reclassified to 1-A. Almost all of the registrants turned down by the Navy in class 4-F have been reclassified 1-A for the Army.

DR. JESSE W. SMITH—If a man is a specialist, is he going into the Army or Navy as a Junior Lieutenant or will his qualifications be given some recognition?

GENERAL EDGAR KING—Consideration has been given to such things. I cannot say what consideration will be given in the way of increased rank, but as to assignment, I have never known of a qualified specialist who was not busy in that specialty sooner or later.

COMMANDER WITHINGTON—In the Navy your original rank is a matter of age. A man who has a specialty, particularly of a certain type, is much more likely to be placed in that specialty. In this particular district there is a standing demand for psychiatrists, x-ray men and dermatologists. There is also a constant demand for men who are general practitioners. In this district the assignment of men is left to the District Medical Officer.

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CLINICAL NOTES

NOVOCAINE INJECTION FOR LOW BACK STRAIN

One of the most frequent and troublesome problems encountered in the ambulatory patient, whether military or civilian, is that of low back pain following lumbo-sacral strain. It is beyond the scope of this paper to deal with the differential diagnosis of low back pain per se, which may involve such divergent pathological findings as sacralization, spondylolisthesis, prostatitis, herniated nucleus pulposus, or even malignant disease. It is intended, rather, to point out the usefulness and rationale of the procaine hydrochloride injection method in treating the large group of cases due to comparatively minor trauma. The value of this method in selected cases has been emphasized by such investigators as Steindler and Luck, Kellgren and Haggart, yet it is surprising how frequently this proven procedure is overlooked in the management of these patients.

Etiology

The type of low back strain under discussion usually occurs in the ligaments which resist forward rotation of the upper sacrum; the lumbo-sacral, the interosseous sacroiliac, and the short and long posterior sacroiliac ligaments. Such strain may exist chronically as a result of faulty posture characterized by some degree of lordosis and visible thrusting of the ischii to the rear. It may occur in the acute form during inexpert lifting in which the pelvis is more or less fixed in anterior rotation while the sacrospinalis muscles accomplish the lift with a minimum of mechanical advantage. Some element of muscular and myofascial strain occurs coincidentally with the ligamentous damage, but in the light of physical examination of the patient it is felt that the bulk of the clinical picture is referable almost entirely to the ligaments themselves.

Pathologic Physiology

It has been shown by Badgley and also by Steindler, following observation of large series of cases, that pain in these patients is due to irritation of sensory nerve endings in the ligaments involved. These structures are supplied by the posterior division of the spinal nerve; and the most workable concept of the pain in these cases is that of referral, with afferent impulses originating in the damaged ligament being reflexly distributed to other post-axial nerve trunks. The traumatized ligament acts as a trigger point initiating discharge of the pain impulses. This pathologic concept is well borne out by symptoms usually presented by the patient and by subsequent disappearance of the pain following breaking of the reflex by local procaine hydrochloride injection.

Approved for publication by the Department Surgeon's office, Hawaiian Department.

Diagnosis

Symptomatically, the outstanding complaint is simply that of "lame back", chronically present since injury and subject to exacerbations upon repetition of exertion. Pain is always localized in the lumbo-sacral region in general but the individual will seldom be able to point out with the finger-tip a single small area of pain; it is usually described as "all through here" or "across the small of my back", the indicated areas being larger than the hand which vaguely points them out. It can, however, usually be established that one side is more painful than the other. Perhaps the most important subjective finding, and one which must often be asked for specifically, is that of sciatic radiation of the pain upon effort resembling that which produced the original injury; this radiation is very often present and follows the concept of pain referral mentioned above. This finding also is generally unilateral.

Examination of the patient reveals two outstanding features, spasm of the sacrospinalis on the side involved and point tenderness over the homolateral posterior sacroiliac ligaments. The muscular spasm does not necessarily indicate damage to the muscle but rather a protective splinting of the generally painful back. This spasm is frequently a painful thing in itself, making subjective localization still more difficult. Tenderness over the ligaments, however, is well localized. Systematic palpation should be carried out, exerting thumb pressure first just medial to the posterior superior iliac spine over the short posterior sacroiliac ligament, then proceeding caudally over the long posterior sacroiliac and cephalically to the ilio-lumbar. The interosseus sacroiliac ligament cannot be accurately palpated, but being the strongest ligament in the body is less susceptible to strain than its fellows. It will be found that one or another of the first three sets of ligaments exhibits marked local tenderness, predominantly unilateral, and reproducing the set of symptoms experienced by the patient during exacerbations. Importantly, the palpation typically produces the reflex sciatic radiation emphasized by Steindler and Luck.

In thirty-four cases studied from this standpoint, it was found that tenderness was present over the short sacroiliac ligament in twenty-four instances, over the long sacroiliac in eight, and over the ilio-lumbar in the other two. In twenty-eight the finding was unilateral. Twenty-one cases demonstrated sciatic radiation upon pressure. Duration of symptoms in these cases varied from one day to eight months, with eight cases classified as acute and 26 as chronic. Sixteen had received previous treatment variously consisting of heat, adhesive strapping, and salicylates.

Treatment

Having demonstrated that these ligaments act as trigger points for the discharge of reflex pain, their infiltration with procaine as recommended by Kellgren and by Steindler may be employed with very satisfactory results. The temporary anesthesia thus afforded acts to break the pain-producing reflex, permits relaxation of the spastic sacrospinalis muscle, and abolishes the vicious circle which has been set up by repeated trauma.

The technique of injection is very simple. The patient is first questioned regarding previous sensitivity to the drug during dental or other treatment. The point previously localized as the pain source is marked with gentian violet. The skin over the region receives surgical preparation with soap, alcohol, ether and a skin antiseptic. A 10 cc. syringe is fitted with a 22 gauge spinal needle and filled with 2 per cent procaine with 1:1000 Adrenalin. A second syringe containing Adrenalin or Coramine is kept at hand for use in the rare cases of sensitivity reaction. The needle is introduced through a skin wheal directly over the tender trigger point, and inserted straight in, injecting ahead of the needle, until the resistance afforded by the ligament concerned is met. Three cc. of procaine solution is then injected around the ligament and the patient observed for signs of unfavorable reaction. If none is present, another 4 cc. is injected.

With the patient still on the table, the needle is withdrawn and the now anesthetic trigger point is firmly massaged with the thumb to assist distribution of the solution. Manipulation is then done in the following manner: With the patient turned on his left side and facing away from the operator, the patient's right arm is brought backward to encircle the operator's waist. The operator's left hand is placed on the right shoulder, his right hand on the right iliac crest. Steadying the shoulder by gentle backward pressure of the left hand, sudden pressure is applied down and forward with the right hand, producing right anterior torsion of the pelvis. This is accompanied by a snap of the vertebral articular facets of almost osteopathic proportions. The same manipulation is then carried out with the patient on his right side.

Reexamination of the standing patient indicates virtually complete relaxation of the sacrospinalis muscles, abolition of the ligament tenderness and freedom from subjective complaints. In the more chronic cases it has been found useful to supplement the injection treatment with an encircling adhesive strapping so applied as to eliminate lordosis and pelvic tilting while it is in place. This is especially true in patients who need postural instruction to eliminate the original cause of their strained ligaments. The acute cases and those of less than a month's duration with a traumatic history do not ordinarily require strapping.

In twenty-five of the thirty-four cases treated by this method a single injection was sufficient to effect a

cure, with no recurrence after six months of observation. In four instances injection was repeated the following day with cessation of symptoms; and in one, recurrence of symptoms after three weeks necessitated an additional injection, and, three months later, a third, which to date has given four months' relief. Three cases in which a rheumatic component was present were injected for diagnostic purposes and were failures from a therapeutic standpoint. One case, receiving only about fifty percent relief from the first injection, refused further treatment.

Selection of cases for treatment is of considerable importance. One must establish that the low back pain is due to strain of the ligaments in question, and for this purpose the diagnostic criteria mentioned must be adhered to. In this connection, however, the injection is sometimes quite valuable as a diagnostic medium alone. In addition, it is felt that the patient with acute low back strain, unless immediate mobilization is required, should receive a brief trial of conservative therapy by strapping, rest, and heat for one or two days. This will often effect a cure and make invasion of the sacroiliac region unnecessary. I used to feel that the conservative regimen should last for two or three weeks before injection was undertaken, but with rapid rehabilitation of personnel presently of such importance, the time was gradually shortened to the present length with no untoward effects and with an unbroken series of satisfactory results. In the chronic case, first seen after weeks or months of discomfort, injection is done as soon as the diagnosis is established. When a single injection fails, giving only partial relief, infiltration should be repeated to catch whatever portions of the ligament were missed originally.

Summary

Strain of the ligaments resisting forward rotation of the upper sacrum is presented as a frequent cause of low back pain. The reflex nature of symptoms and signs is discussed according to the investigations of various authors, with sciatic radiation emphasized as a diagnostic point. The use of local injections of procaine, hydrochloride is presented as a well-established technique which is often overlooked in the management of these cases.

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CLINICO-PATHOLOGIC COMMENT

CYSTIC STATES OF THE OVARY

Many physicians, even those doing gynecologic surgery, have but a nebulous understanding of the histogenesis and pathologic nature of various common cystic states of the ovary.

It is unfortunate for the female of the species that, during the course of evolution, her ovaries came to be so accessibly located in the abdominal cavity, within reach of any surgeon. It is also unfortunate that their removal is not attended by immediately apparent harmful effects. It is even more unfortunate that these labile structures manifest their function, in the normal course of events, by visible alterations in size, shape and external appearance. It can truthfully be said that the ovary possesses no fixed morphologic structure; it changes its appearance, at least during the reproductive period, from month to month and even from day to day. Thus a static anatomical concept of the "normal ovary" is necessarily false, and failure to appreciate this fact has resulted in the needless removal of many ovaries under the mistaken impression that they were abnormal.

For these reasons the following brief review of cystic states of the ovary is being presented.

Non-neoplastic or Non-proliferative Cysts

These are by far the most common cystic lesions of the ovary found in surgical or post-mortem specimens, and the commonest of these is the small *follicle cyst* or follicular cyst. These innocent little structures are universally present in ovaries and must be regarded as physiological by-products of the hyperplasia-involution cycle in the ovary. They may be single or multiple, and they vary from microscopic size up to 4 or even 5 cm. in diameter, although the great majority are less than 2 cm. in diameter. They almost always contain thin clear fluid or pink coagulated gelatinous material and always exhibit a smooth, glistening, white or bluish-white internal lining devoid of papillary excrescences of any sort. Hemorrhage occasionally occurs into them; under these circumstances they are filled with clotted blood and constitute one variety of the so-called "chocolate" cyst of the ovary. They often bulge somewhat from the surface of the ovary, and, if they are multiple, form the so-called "small polycystic ovary," a physiologic state erroneously interpreted as pathologic by some surgeons.

It will be recalled that each month a number of primordial follicles start to develop, of which only one reaches maturity. As the ovum dies and becomes absorbed, the remainder undergo atresia, and, during the process, fluid often accumulates with the formation of a small cyst. In most instances the fluid is gradually absorbed and the end result is a small

dense scar, the corpus fibrosum; only occasionally does such a cyst become large enough to produce symptoms.

Microscopically, the nature of such cysts is usually immediately apparent, since they are lined by granulosa cells (of follicle origin), although at times no epithelial lining can be found (because of pressure atrophy) and the exact classification of the cyst is then in doubt. The important point to bear in mind is that these little cysts have no relationship whatever to true neoplasms. It should be clear from the foregoing that a pathologic diagnosis of "follicle cysts" refers to a physiologic state in the ovary and does not in itself justify removal of the ovary.

Luteal cysts are also very common. They may be either single or multiple and vary greatly in size, seldom becoming larger than 4 cm. in diameter. They commonly contain blood clot and are lined by a soft festooned lining which may be yellow or white. If the cyst is of recent origin, the lining membrane is yellow and convoluted in cross section, resembling the corpus luteum from which it is derived; if the cyst is of long standing, the lining is apt to be white and somewhat fibrous. There is usually no difficulty in recognizing such cysts microscopically since they are lined by large pale lipid-filled cells similar to those constituting the corpus luteum.

As their name implies, these cysts are derived from the corpus luteum, a structure which normally is partially cystic and which normally reaches a diameter of $1\frac{1}{2}$ or 2 cm. It is thus a difficult matter, and one of no practical importance, to make the fine distinction between a cystic corpus luteum and a corpus luteum cyst.

A rare variety of luteal cyst, the theca-lutein cyst, is described, characterized by luteinization of both granulosa and theca interna cells and occurring usually with hydatidiform mole or chorionepithelioma, where there is tremendous production of chorionic hormone. I have not yet observed this condition. For practical purposes luteal cysts may be regarded as arising from the corpus luteum and should in general be regarded as physiologic, although they are more prone to undergo spontaneous rupture than the more common follicle cyst.

The *germinal inclusion cyst* may be mentioned in passing, although it is of little practical importance to the physician. It is small, often microscopic in size, and is formed by "dipping downward" and subsequent "pinching-off" of the germinal epithelium covering the ovary. The result of this process is the formation of a small cyst beneath the surface of the ovary which is lined by flattened or cuboidal epithe-

lium; its only practical importance is the fact that it is sometimes erroneously identified histologically as aberrant uterine mucosa

Neoplastic Cysts of the Ovary

Endometrial cysts are relatively common and are usually associated with endometriosis of other pelvic structures. They may be single or multiple and are invariably filled with "chocolate" material. They vary considerably in size but seldom get very large since they are prone to undergo perforation with dissemination of their contents throughout the pelvis. They are lined by endometrial or tubal epithelium, usually the former, and exhibit varying amounts of endometrium-like stroma beneath and around the epithelium. It is the latter finding which makes the histologic diagnosis easy but, even in the absence of stroma, the correct diagnosis can usually be arrived at by the character of the epithelium, the nature of the contents, and the presence of blood pigment, much of it within large macrophages, in the wall. Such cysts, of course, not physiologic and are a part of the general problem of endometriosis, which cannot be considered here. One practical point is that a "*chocolate cyst*" of the ovary may be of follicle, luteal or endometrial origin, and the microscope is the only sure means of determining which. Thus the surgeon should not jump to the conclusion that he is dealing with endometriosis when he finds a number of "chocolate" cysts in the ovary unless there is unequivocal evidence of endometriosis elsewhere in the pelvis.

These structures, true neoplasms in every sense, have no relationship to the structures mentioned above. There are three fairly common, more or less distinct, types of cystic neoplasms of the ovary which differ in their histogenesis, morphologic structure and clinical behavior, and, if justice is going to be done to the patient, the surgeon should have some understanding of these facts

The *dermoid cyst* is the commonest cystic neoplasms of the ovary in Hawaii as determined by a survey of the surgical material at the Queen's Hospital, St. Francis Hospital, and Kapiolani Maternity Home. It is generally said to rank third in frequency, below serous and pseudomucinous cystadenomas. Its gross structure is so characteristic and well known that there is little purpose in describing it here. Microscopically it is lined by stratified squamous epithelium and there are abundant hair follicles and sebaceous glands in its wall. It is composed predominantly of ectodermal derivatives, although, if a careful enough search is made, tissues derived from the other germ layers can usually be found. It should perhaps be regarded as a peculiarly benign one-sided (ectodermal) development of a teratoma. Malignant change may occur, although it is extremely rare, and always takes the form of a squamous cell carcinoma arising from the lining of stratified squamous epithelium.

Serous and *pseudomucinous cystadenomas* of the ovary occur with about equal frequency in Hawaii and

are not quite so common as the dermoid cyst. The pseudomucinous cystadenoma is unilateral or bilateral, usually multilocular, and its compartments are filled with a sticky mucoid glycoprotein called "pseudomucin" because it fails to give the chemical reactions of true mucin. Such cysts are characteristically lined by a single layer of tall columnar epithelium with basal nuclei and many goblet cells, identical in appearance with much of the epithelium which lines the gastrointestinal tract. Such neoplasms consequently should be regarded as one-sided developments of teratomas in which the entodermal elements have blotted out the derivatives of other germ layers, just as, in dermoid cysts, the ectodermal elements predominate. I have observed on two occasions a combined dermoid cyst and pseudomucinous cystadenoma in the same large cystic tumor of the ovary—very convincing evidence that they both are predominately monogerminal teratomas, arising, of course, from the germ cell itself.

The serous cystadenoma bears only a superficial resemblance to the pseudomucinous type and differs in its histogenesis and clinical behavior. It may be unilateral or bilateral, unilocular or multilocular, and contains clear serous fluid rich in protein. It is characteristically lined by low cuboidal or flattened epithelium and is frequently papilliferous in nature, exhibiting villous processes or wart-like projections either into the lumen of the compartments or from the external surface. It undoubtedly arises from the germinal epithelium covering the ovaries; in fact, all stages of development from this epithelium have been repeatedly observed. I have seen a number of very small serous cystadenomas of the ovary, in some of which a direct transition to the germinal epithelium could be found. It is of interest that many of these early tumors show astonishing fibroma-like proliferation of connective tissue, so that one wonders whether this, rather than epithelial proliferation, may not be the primary neoplastic change in the development of these tumors.

It is thus clear that serous and pseudomucinous cystadenomas of the ovary are radically different both in their histogenesis and in their gross and microscopic structure. Their most important difference, however, is in their biologic history: only 5 per cent of the pseudomucinous variety become malignant while by conservative estimate at least 20 per cent of the serous type result in carcinoma. The importance of this statement is obvious, yet, strangely enough, very few surgeons attempt to make the distinction between these two types of neoplasms preoperatively, during the course of the operation, or postoperatively.

Summary

With all due apologies to Novak, Meyer, Meigs, Hertzler and others, and to the surgeons, a brief review of neoplastic and non-neoplastic cysts of the ovary has been presented.

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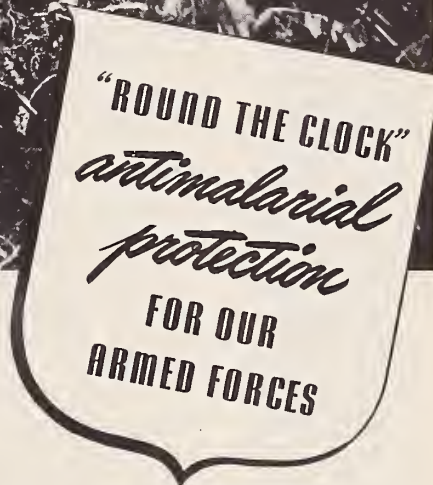
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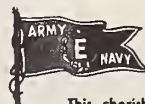
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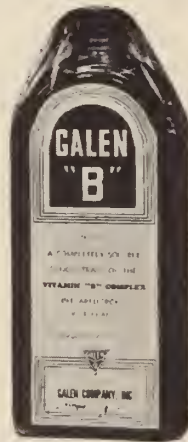
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HOSPITAL NEEDS

THE QUESTION OF A CONVALESCENT NURSING HOME

To answer the question of the need for a convalescent-nursing home is to recount a stream of requests for such a haven that has been increasing in volume over a number of years. It has now reached threatening proportions.

The time, effort, and money spent hunting and advertising for homes have been largely wasted, to say nothing of the uncomfortable feeling engendered by having a patient in such homes, regarding which little or nothing is known, and the subsequent unhappiness of the patient who finds himself in a "home" which has proved quite unsuitable to his needs and taste. The feeling of wasted effort which hospital personnel, accustomed to caring for acutely ill patients, sometimes experience in dealing with the chronically ill, the latter's untoward reaction when conscious of being unwelcome, and finally, the anxiety of not a few who see their financial resources strained beyond reasonable limits to pay for care in a hospital, are factors not to be disregarded.

Last Spring the Honolulu County Medical Society sent questionnaires to all its members and the following is quoted from replies received from 76 doctors:

596 patients admitted to hospitals during the year could have been discharged earlier, if a suitable convalescent-nursing home had existed;

40 such patients could have been currently discharged;

23 chronically ill patients were being attended at home by special nurses who might otherwise have been working in hospitals where there existed an acute shortage of nurses.

In discussing this need the term "convalescent-nursing" will be used, for though the categories are distinct, a properly planned home can care for both the convalescent who is recovering from an acute illness and the chronically ill, including the aged, who needs more or less nursing care indefinitely.

With the exception of the city and county's Maluhia Home, which has ward accommodations only, for patients who are indigent or on the fringes of indigency, there is no suitable institution in Honolulu for persons between this economic level up to and including those who are in the most favored financial

brackets but who are either without homes or without relatives who can, or are willing to, take care of them.

Maluhia Home was established for adults, but, "because there is nowhere else for them to go," children are sometimes sent there. This is neither good medical nor good social practice. There are many minors, not necessarily confined to the indigent, whose parents or homes are quite inadequate, or whose mothers are working, or who for many other adverse reasons cannot get proper convalescence and are therefore being re-admitted to hospitals.

The Bureau of Crippled Children under the Board of Health has repeatedly presented the need for a home to care for children or minors still under medical supervision but no longer in need of hospitalization.

There is always the danger, too, in hospitals, of the older children, or adolescents, coming in contact with adult patients of unwholesome influence.

The Vocational Rehabilitation Bureau wants an institution where they can more adequately rehabilitate; they want a place where crippled adults as well as children may have access, while convalescing, to well equipped workshops. There is no reason, except for the lack of proper facilities, why one who has lost limbs, or the use of such, should become a mental or an emotional cripple as well.

Therefore, in considering this subject one should bear in mind the type of home needed, ages and disabilities, and whether or not it should include patients on services subsidized by the government.

To recapitulate, there are no proper facilities in the Territory to give convalescent or nursing care to patients who are able to pay for it, to children whose homes are inadequate or who come from the other islands, or to adequately rehabilitate cripples.

It has been pointed out that nursing homes which have sprung up in the past have all faded out. Will not another one likewise fail? The failures of these homes were due to one or more of the following reasons: they were too small; the owners were unknown; they were run on a profit basis; financial backing was lacking; there was inadequate organization or poor administration, or poor standards. Careful planning on a sound financial basis would establish the home envisioned. There would be accommodation ranging from wards to private rooms, and as there would not be the extra services supplied by hospitals — surgery, x-rays, laboratory, etc., — the overhead would be comparatively small and the patient of moderate means would be better able to pay for it.

Physicians like the convenience of having their patients under one roof but by the same token they perhaps feel obliged to visit them more often than is necessary. Sick people can be over-demanding of attention and feel neglected if their doctors, making rounds in a hospital, are not including them; whereas in a convalescent-nursing home they would be content with fewer calls. Also such a home, staffed with responsible personnel, would call an attending physician if and when necessary.

Human nature is such that illness has a tendency to bring out recessive traits and patients long hospitalized can become dependent to the point of being nuisances to a hospital personnel. Frequently attempts are made to move such patients out. It has become well nigh impossible to find an "out". The disciplinary problems are not the acutely ill, but those who remain long past the time the hospital is doing them any good.

It was a most difficult matter, at the time of the blitz, to find domiciles for the chronically ill who were boarding in a hospital (one for eight years). A few of the less economically favored were most unhappy in the places to which they were sent. A repetition of the same difficulties would have to be faced in the event of another emergency (not necessarily war connected) if these convalescents and "chronics" had to be moved out in a hurry because the beds were needed for the acutely ill.

Planning and running a hospital for the acutely ill is an entirely different matter from planning and running a convalescent-nursing home. In a hospital there must be maintained a certain nurse-patient ratio and because of the quick turn-over of patients, nurses must function according to routines applicable to the acutely ill. If in such a hospital there are also convalescents and chronics who need comparatively little actual nursing care, the nurses nevertheless proceed in routine fashion to give these persons more time-consuming care than they actually need. Nor will such patients generally accept less. On the other hand, in a convalescent-nursing home, the ratio of nurses to patients would be much lower. Also to a much greater extent than is possible in the hospital, a trained nurse in such a home can be assisted by practical nurses. It is reasonable to suppose too that there are women now doing excellent work under the Red Cross, as nurses' aides, who would be glad to continue to be of service. Finally, the atmosphere of a convalescent-nursing home would be conducive to patients' doing as much as possible for themselves—in itself good therapy.

The patient's (or the relative's) pocketbook too deserves some consideration and in this regard we are constantly aware of strains and conflicts in families subjected to the excessive cost of care for members in the hospital or elsewhere. In yesteryears when life was at a quieter pace, when tensions were less, when homes were larger, when servants were obtain-

able, it was not as difficult as it has since become to care for convalescents or chronics in their own homes or in the homes of relatives; this is particularly true where there are young people full of the health and noise of growing up. There are cases now of families, with children in the most expensive ages of growth, paying \$500 a month for the board and nursing care of chronically ill relatives in the private homes of nurses. There are also in a community of this size single men and women not necessarily aged who, being incapacitated, can no longer live in hotels or boarding houses.

The present shortage of personnel is a problem which we would have to face and which might hold up the scheme for the duration. On the other hand, moving suitable patients from hospitals to such a home, where adequate care could be given to a larger number of people by less personnel, might in turn bring some relief to the limited personnel in hospitals.

The present over-all per capita cost for a patient at Queen's is \$8.50 a day. Ward rates for bed and board are \$5.00. Bed and board in a private room in a convalescent-nursing home could probably be had for \$5.00 or \$6.00 per day and for less in wards. The more expensively furnished rooms would, of course, cost more, but in any case not as much as comparable accommodations in a hospital.

Even if such a home did not pay, at least for a while, it would be a step in the right direction. It would in all probability have to be subsidized for several years. It is conceivable too that by interesting people in such a home, we might secure grants as memorials or through wills.

In conclusion, it would seem that the time is ripe to establish a convalescent-nursing home in Honolulu. It may not be possible or expedient at the outset to do it in its entirety—convalescents and "chronics", minors and adults, private patients and those subsidized by government, on a territorial rather than county basis—but it might be wise to consider all in a master plan which, beginning on a less pretentious level, would look well into the future. To this end the Honolulu Chamber of Commerce, presently interested in a survey of hospital beds, has been approached by the Honolulu County Medical Society and the Hawaii Territorial Medical Association. It would be well for the Chamber of Commerce to consult with the Hospital Association, the Nurses' Association and the Hospital Social Service Association, all of whom are close to the problem and are, therefore, able to offer constructive ideas to an over-all plan that would include setting up, financing and administering a home as an entity in itself, with its own board of managers, filling a need in the community of which there is no longer any doubt.

MARGARET M. L. CATTON,

Director of Social Service,
Hospital Social Service Association



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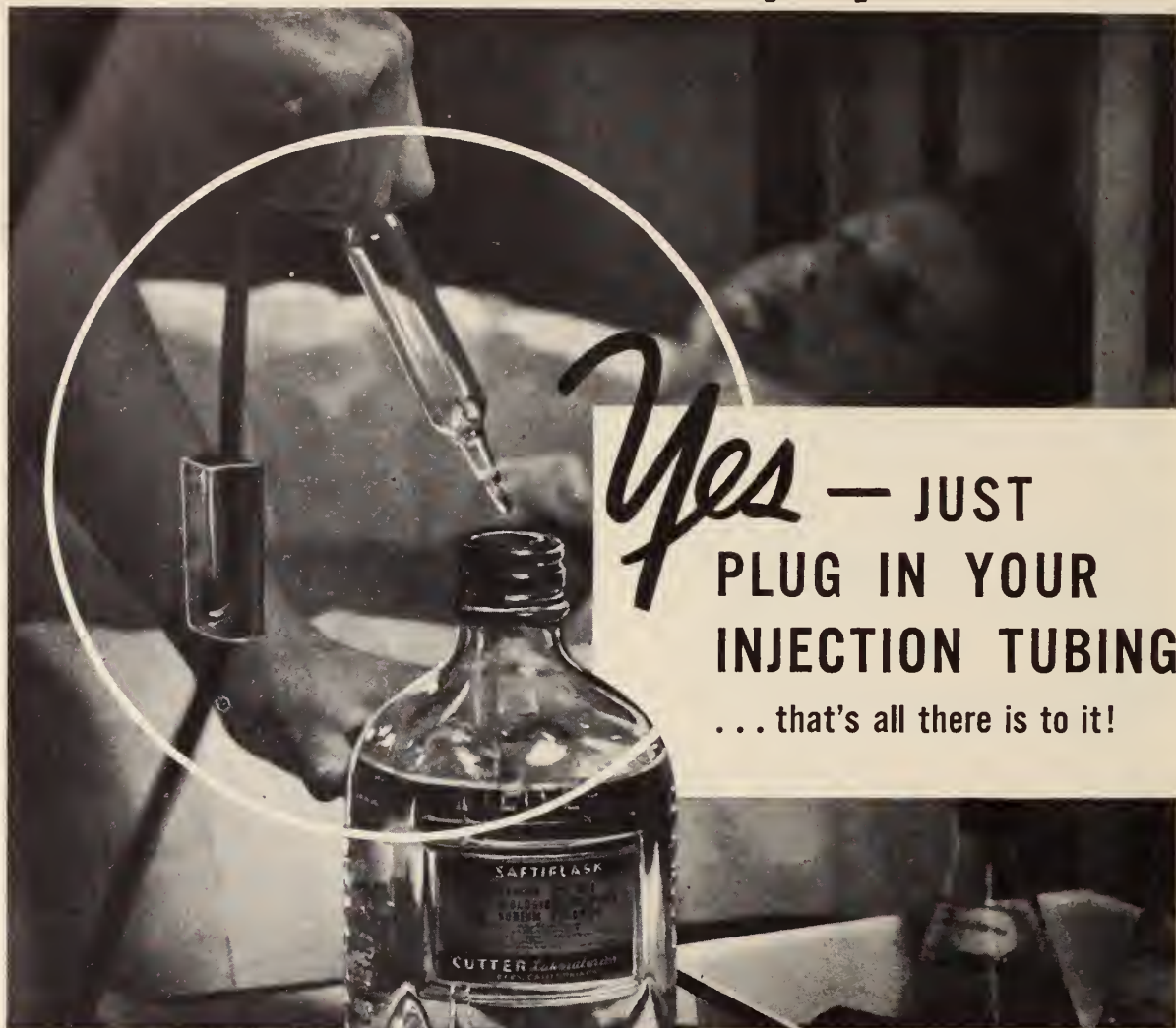


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EMERGENCY MEDICAL SERVICES

(FORMERLY MEDICAL PREPAREDNESS)

In July 1943, the First Aid and Ambulance Division of the Emergency Medical Service reduced its monthly budget to approximately \$15,000.00 from a monthly average of about \$45,000.00, a reduction of \$30,000.00. A considerable number of people were released thereby to enter other activities, but it is gratifying to note that a large percentage of this group has maintained a volunteer status at the first aid stations which they helped to operate during the tense defense period. At present only three first aid stations in the city continue to operate on a 24-hour basis. A few stations maintain skeleton staffs at night; all others are closed. The few "night" stations have limited their staff to a nurse and a nurses' aide who keep the station in a state of readiness to facilitate mobilization. As time goes on and the military situation develops more favorably, further alterations in this organization will be indicated.

General hospitalization facilities continue to be offered at Sacred Hearts Hospital and at Wahiawa. The monthly operating cost of these hospitals is \$2,000.00 and \$21,000.00, respectively, but receipts from patients, all remitted to Washington, should be credited against this. The hospitalization program on the outside islands has been altered somewhat and is reported in detail below.

Maneuvers

All-out maneuvers were held in the city last September and in the rural areas in November. A surprise maneuver in the city was staged in November. All agencies of the O.C.D. participated and the Army provided the incidents, making the test as realistic as possible. Much information was gained and many lessons were learned by all concerned. Greater decentralization of the O.C.D. was deemed necessary to deal with incidents promptly. Accordingly three divisions of the Emergency Medical Service were set up in the city. These are charged with the responsibility for casualty collection and casualty treatment, and have been given autonomous control to clear incidents automatically. Such divisions will call upon the next higher authority only when further help is needed. The O.C.D. control center will oversee the general picture.

The morale of the personnel continues to be high. Although the greater part of the personnel now manning O.C.D. medical installations are volunteers, there was 100 per cent attendance at maneuvers and alerts. More tests of this nature will be given in the future.

Mobilization of Hospital Personnel.

Some confusion seems to exist among hospital personnel as to the correct procedure to follow in responding to duty during the sounding of the air raid alarm. A directive from this office, sent to all concerned, directed each hospital to decide how it was to mobilize its own personnel. One hospital preferred to have all essential personnel, paid or volunteer, report to their posts immediately on sounding of the air raid alarm. This automatic method of mobilization allows the doctors of blitz teams, nurses, nurses' aides, fire fighters, litter bearers, vehicle drivers, etc., to report to duty immediately. The resident staff prepares to evacuate patients, sets up the triage and casualty receiving wards and operates fire control stations. This method is very satisfactory and permits the hospital to be fully equipped and staffed for maximum effort within fifteen minutes of the first air raid alarm.

The "All Clear" is *not* a signal for hospital personnel to leave their posts; they should remain until discharged by competent authority (usually the chief of staff or superintendent of the hospital).

It is suggested that all hospitals adopt the mobilization procedure just outlined.

Transfer of O.C.D. Hospitals to the Army

Several O.C.D. hospitals on the outside islands have been released to the Army—Maunaloa on Maui, and Huleia, Waimea and Makaweli on Kauai. The physical plants and some medical equipment were transferred to the Army on an operating agreement whereby the Army agrees to treat and hospitalize civilian casualties during any emergency.

Hospitalization of Tuberculosis Patients

A 100-bed annex has been completed at the Wahiawa Emergency Hospital for the care of tuberculosis patients. This plant consists of three large ward buildings, each equipped with private rooms for seriously ill cases, treatment and examining rooms, a large serving kitchen, dining room, and laundry. One hundred civilian patients were transferred to this annex from Tripler General Hospital in November. Dr. de Harne, the Medical Director, is assisted by Dr. Takenaka, and the medical staff of Leahi Hospital supervises the patients. Patients will be exchanged between Leahi and Wahiawa according to treatment requirements. The annex is operated by the O.C.D. staff of the Wahiawa Emergency Hospital. The Department of Public Welfare is financing the project under agreement with the O.C.D. Fifty-two civilian tuberculosis patients still remain at Tripler General Hospital.

Nurse Recruiting Program

The O.C.D., until recently, recruited nurses for the hospitals of the Territory. This service has been turned over to the War Manpower Commission. Because of a recent ruling whereby the authority for clearing and releasing recruited personnel was placed in the hands of the local War Manpower Commission, thus taking out of the hands of the O.C.D. any control over the persons it had recruited, it was decided that the War Manpower Commission should also do the recruiting.

An analysis was recently made of the nursing service of Queen's Hospital, at the request of its directors, by Miss Margery MacLachlan of the O.C.D. Nursing Division, in an attempt to simplify and expedite the nurses' work so as to better utilize their time and energy and attain maximum efficiency. Miss MacLachlan's services are available for this purpose to any hospital upon request.

Clarification of Principles in Management of War Gas Casualties

The following routine is advised by the Emergency Medical Service and the Gas Defense Division of the O.C.D. as the procedure for handling gas casualties:

(a) Vesicant gas casualties will leave the gassed area as quickly as possible, remove clothing and bathe at the nearest water faucet, using plenty of water and soap, and proceed for chemical treatment to the nearest decontamination station under their own power. After chemical treatment they will be sent to the nearest first aid station for medical treatment. Most of

these cases will be sent home; those in need of hospitalization will be sent to the nearest hospital.

(b) Vesicant gas cases, with wounds, will get out of the gassed area under their own power, if they can, or such cases will be evacuated by *other* than medical service personnel. Outside the gassed area they will receive decontamination service by the Mobile Squad and be sent to the nearest decontamination station for further chemical treatment. If decontamination is completed in the field, the patient can be sent directly to the first aid station for medical treatment. If a vesicant gas casualty cannot be thoroughly decontaminated in the field and ambulance service is necessary, the nearest aid station will send an ambulance. Before that ambulance can be placed in service again for transportation of medical casualties, however, it must be decontaminated.

(c) Lung irritant cases (phosgene) will be litter cases from the point of origin; be picked up by ambulance and taken to the nearest aid station for treatment and further disposition. Phosgene and other allied lung irritants are non-persistent gases; no decontamination is necessary.

Upon the completion of two years' activity, the Territory of Hawaii can rest assured that its Emergency Medical Service will continue to render efficient service and provide the maximum in civilian medical protection. Recent alerts and maneuvers have shown definitely that its personnel, as a result of their regular musters and training sessions, are capable of manning their posts efficiently and without confusion.

H. L. ARNOLD, M.D.,
Territorial Medical Director.



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COUNTY SOCIETY REPORTS

HAWAII COUNTY MEDICAL SOCIETY

The 222nd regular meeting of the Society was called to order by the President at 5:30 p.m. at the Honokaa Club on November 14th. The Society was guest of Drs. Bergin, Carter, Larsen, Okada, Shimamura and Woo. The occasion was the semi-annual dinner meeting. Twenty-one members and guests were present.

Request was read from the Principal of the Hilo High School for approval or disapproval by the Society of the plan of sex education outlined in Dr. Nils Larsen's book "Facing Life" which was recommended for adoption in the high schools and about which there was some uncertainty about the reaction of parents to such a program. The Principal asked for a committee to confer with him. A committee consisting of Drs. Hirsch, Orenstein and S. R. Brown was appointed to study the plan and report back to the Society.

A letter from the Kona Social Agencies stating the inadequacies of the present foodhandlers' examinations was read. It was generally agreed that the present methods were not sufficient for the protection of the public. The President will consult the Board of Health regarding the new regulations and will report back to the Society. The Kona Social Agencies will be assured that the Society will give the problem utmost consideration.

Dr. Hirsch reported on the blood and plasma insurance program soon to be inaugurated at the Hilo Memorial Hospital; he stressed the importance of a physical examination, which he felt should be done gratis. Dr. B. Brown backed him up on this point.

A. ORENSTEIN, *Acting Secretary.*

MAUI COUNTY MEDICAL SOCIETY

At the November 28th luncheon meeting of the Maui Society, held at the Wailuku Hotel, Dr. H. L. Arnold, Jr., from Honolulu, was guest speaker. His topic was the treatment of the common skin lesions, illustrated by colored slides. He recommended treatment of recurrent herpes simplex and herpetic stomatitis with smallpox vaccine intradermally and claims it to be very effective for herpes of the eye also. He first vaccinates the patient, then gives approximately

one-half the contents of a capillary vaccine tube intradermally. The dose is stepped up gradually.

Dr. Arnold was invited to repeat the skin clinics, held at Paia, Puunene and Wailuku, at regular intervals, and he has promised to come to Maui about April 1st.

No new business was discussed. Guests, in addition to Dr. Arnold, were Dr. Frank St. Sure, Jr., Major Proffitt and Capt. Bell; twelve members attended.

W. B. PATTERSON, M.D., *Secretary.*

HONOLULU COUNTY MEDICAL SOCIETY

At the regular meeting of the Society on Friday, November 19, at 4:30 p.m., Major Gerard de Oreo, Chief of the Section on Dermatology & Syphilology at Tripler General Hospital spoke on the Modern Concepts in the Treatment of Syphilis.

The Board of Censors' recommendation, approved by the Board of Governors, for expulsion of Dr. Peter L. Young, was confirmed by a unanimous ballot.

The following resolution presented by the Board of Governors was adopted upon vote by the membership:

RESOLUTION

WHEREAS, it has come to the attention of the Board of Governors in recent months that the question has repeatedly been raised as to the propriety of appointing to local hospital staffs physicians of alien birth or American citizens of German or Japanese ancestry,

BE IT RESOLVED, that the Honolulu County Medical Society go on record as recommending to the hospitals that the eligibility for appointment to such hospital staffs be on the basis of licensure to practice medicine in the Territory of Hawaii and that the physician be known to be in good standing, professionally and ethically, and that it is not considered within the province of the medical society or the hospitals to adjudge a man's standing, politically or nationally; that task presumably being in the hands of appropriate agencies of the government.

The regular meeting of the membership for December was held on the 10th at 7:00 p.m. Frederick A. Schramm, Director of the Industrial Hygiene Division, Bureau of Sanitation, Board of Health, presented a paper on "Industrial Hygiene Program of the Board of Health." Discussion was by Dr. Nils P. Larsen, and Lt. Rodney T. West, M.C., USNR. Attendance about 25.

The business before the Board of Governors at the December 3rd meeting was as follows:

Membership. Accepted to service memberships:

David L. Adler, Major, M.C., A.U.S.
William S. Cornell, Lt. Col., M.C., A.U.S.

Dr. Tokuji Takahashi. Letter from Dr. Arnold dated November 22nd requesting expulsion as an enemy of the U. S. was considered. Dr. Takahashi had been dropped from membership at the end of the fiscal year 1942-1943, so that no action as suggested was in order.

Plantation Health Plan. Dr. Benyas reported on the meeting of the HTMA Council with Drs. Rothwell and Liljestrand and read letter from the Council transmitting proposed HMSA plan for plantations.

Library Endowment. Drafts of letters read; general consensus they lacked appeal. Drs. Molyneux, Winter and Smith appointed to draft another letter.

Hospital Bed Shortage. Dr. Bowles reported meeting of Chamber of Commerce with medical society and hospital representatives and action that Chamber make a survey. Mrs. Bolles reported meeting of

Public Health Committee, voting to make survey and using \$2,500 already set aside for use of gathering preliminary data.

Dept. Public Instruction. Request was made for a fee schedule for vocational rehabilitation of physically handicapped. Secretary instructed to advise that fee schedule is in process of revision. Charges for cases meanwhile may be arbitrated.

C & C Patients. Resolution adopted by Board of Supervisors and approved by Mayor was read, authorizing the C & C physician to pay to the Honolulu County Medical Society, through the various hospitals, amounts equal to 20% of hospitalization, not to exceed \$12,000 annually.

Nurse Shortage. Letter from Dr. Arnold, December 2nd, asking for representative to meet re regulation of nurses employed in hospitals, and brought in by OCD.

The consensus was that the War Manpower Board ask for a medical advisory board to pass on medical releases.

Building Service Charge. Letter was received from Program Committee asking that the 50 cents service charge be adjusted in cases where the medical society caters its own buffet refreshments upstairs.

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In addition to the service to individuals, to accredited research institutions and to the various governmental establishments, microfilm copying is being conducted with special reference to the needs of the widely scattered medical units of the Armed Forces. This emergency need accounts now for the major part of the microfilm activities of the Army Medical Library and they are expanding at a rapid rate.

The operation of Medicofilm Service, which has hitherto done microfilm copying in this Library at a cost just sufficient to pay its way, will be practically suspended beginning September 1, 1943.

Since microfilm copying is being done by this Library to promote medical research in its broadest aspects, orders may be sent direct by individuals or through the librarians of hospitals, medical schools and other institutions located in this country or elsewhere. In general, only the separate articles in the periodical literature will be copied. Long run copying may be done in special cases but will be subject to such modifications as the facilities of the Library and the present restricted supply of film, dictate.

In order to simplify the operation of the copying service, the use of order blanks will no longer be required. Titles and references to articles of which microfilm copies are desired should be written on letter paper and a carbon copy of each request should be included.

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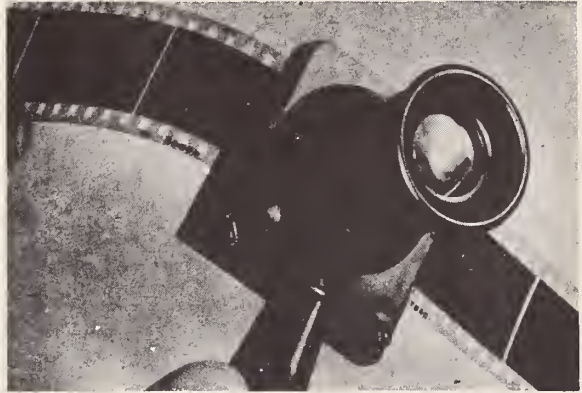
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OBSTETRICAL ABSTRACTS

Dr. Nichol J. Eastman in the "Foreword" introducing the *Quarterly Review of Obstetrics & Gynecology*, states that there has long been need for an abstract journal of Obstetrics and Gynecology in the English language. Such a periodical serves several purposes. In the first place it calls to the notice of the reader a vast array of articles which he would otherwise miss; and some of these he may find of special interest and value. Secondly, if the papers are well selected and comprehensively abstracted, a publication of this kind is a valuable time saver—surely, no small consideration in these hurried days when the pressure of practice leaves little time for medical literature. Finally, the bound volumes of an abstract journal, when properly indexed, constitute a most useful reference work in which the whole recent literature on any given subject may be reviewed in sequence.

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Nephritis	Weight	Visceroptosis

The *Handbook of Nutrition* has been added to the library as a gift from the A.M.A. by whom it is published. This book embraces in its authorship most of the leading authorities on nutrition in the United States. It provides the latest literature on proteins, carbohydrates, fats, mineral salts and vitamins. The price is \$2.50.

NEW DRUGS

New and Nonofficial Remedies, 1943. The terminology of the official drugs has been revised to conform to the U.S.P. XII and the N.F. VII. Textual changes and revisions do not appear to be as numerous as in some previous editions. The chapter, Digitalis and Digitalis-like Principles and Preparations, has been extensively and somewhat radically revised to keep pace with the changing attitude toward this drug. In this revision the Council on Pharmacy and Chemistry of the A.M.A. had the aid of the foremost digitalis authorities, pharmacologists and clinicians alike. No such spectacular new additions as the ap-

pearance in a previous volume of the sulfonamides is to be noted. Among the more noteworthy of the new additions are Nikethamide, the central nervous system stimulant which was first introduced as Coramine; Diethylstilbestrol, the synthetic estrogen; Trichinella Extract for the diagnosis of trichinosis; and Zephiran Chloride, a mixture of alkyl dimethyl benzyl ammonium chlorides, an interesting new anti-infective agent.

NEW ALLERGY JOURNAL

Annals of Allergy, published by the American College of Allergists, bimonthly, made its first appearance in July 1943, edited by French K. Hansel of St. Louis, Ethan Allen Brown of Boston and J. Warrick Thomas of Cleveland.

MISSING JOURNALS

Binding of the following journals for the library is being delayed for want of the following numbers. If anyone has these and is willing to give them up he would be rendering the library a great service.

American Journal of Ophthalmology

1919	July, Dec.
1920	Oct.
1924	June
1925	Jan., Dec.
1932	Aug.-Dec.
1936	Jan., Aug.
1937	Feb.

American Journal of Psychiatry

1923	Jan.-Mar.
1926	Jan.-June
1927	Nov., Dec. Mar.-June
1928	Mar., Apr., July, Aug.
1929	Mar., Apr., Sept., Oct.
1931	Jan., Feb., July-Dec.
1932	Jan.-Aug.
1933	July-Dec.
1934-1938	inclusive, all

American Journal of Obstetrics & Gynecology

1931	March
1917	all but May
1918	May-Dec.
1919	Jan.-Aug., Oct.

Archives of Internal Medicine

1940	Feb., Aug.
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British Medical Journal

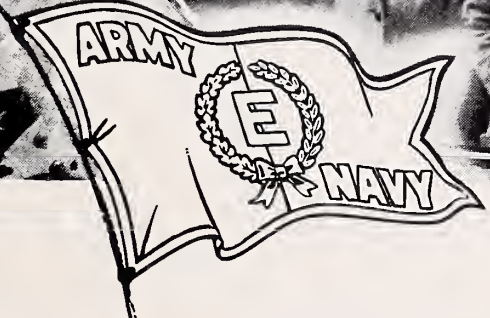
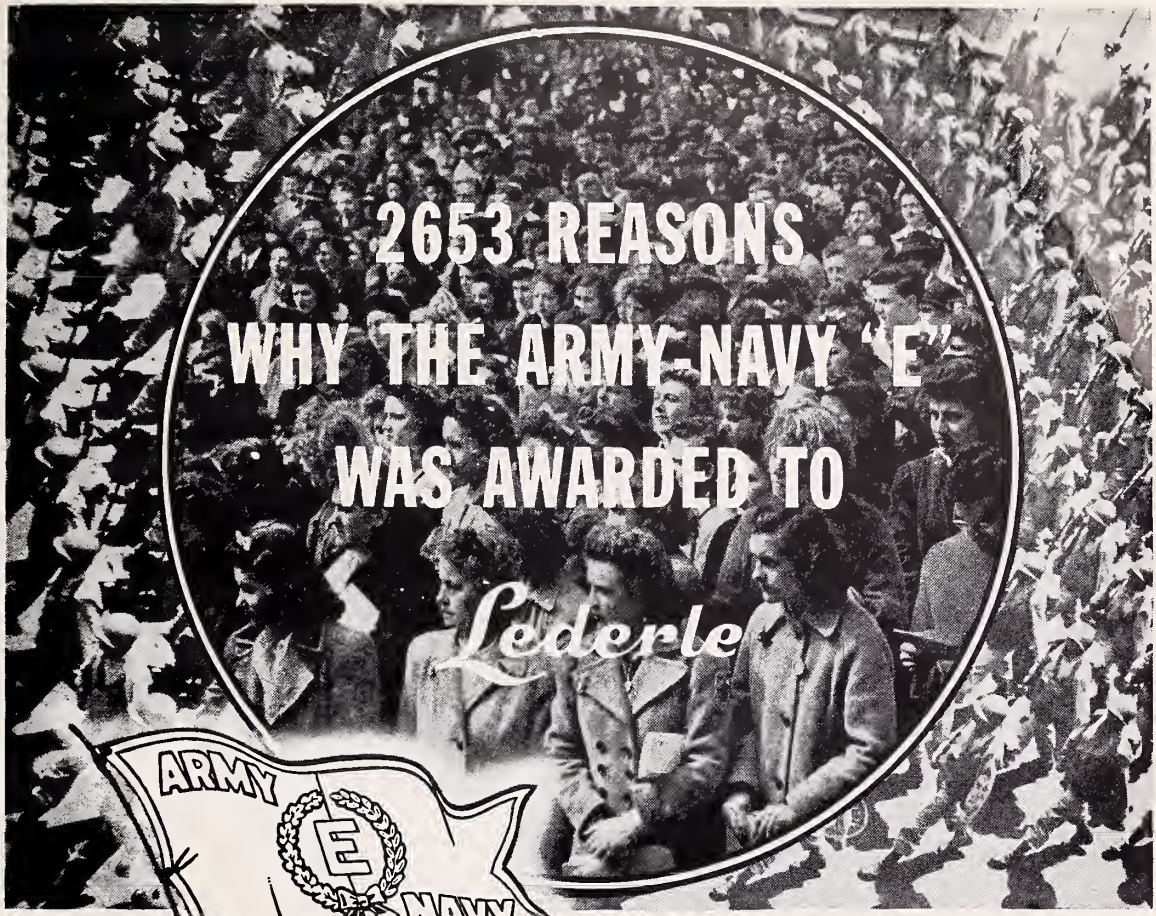
1940	Aug. 3, 31; Sept. 14, 21
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Lancet

1930	July 5
1933	May 27
1897	Jan., Feb., Mar., Apr.
1898	Feb. 5, July 16
1899	June 24, July 1

INDEX TO ADVERTISERS

Abbott Laboratories	135	McArthur & Summers Pharmacy.....	152
American Factors, Ltd.....	148	Mead Johnson & Co.....	Back cover
Cutter Laboratories	144	Merck & Co., Inc.....	136
Don Baxter Co.	108	Parke, Davis & Company.....	132
Eli Lilly & Company.....	110	Philip Morris & Co., Ltd., Inc.....	131
Galen Company	140	Sandoz Chemical Works, Inc.....	146
Hawaii Medical Service Association.....	126	Squibb & Sons, E. R.....	147
Kodak Hawaii, Limited.....	143	Upjohn	107
Lederle Laboratories, Inc.....	Third cover	Winthrop Chemical Co.....	139
Love's Biscuit & Bread Co.....	151	Wyeth & Brother, Incorporated.....	Second cover



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HAWAII MEDICAL JOURNAL

VOLUME 3

MARCH-APRIL, 1944

NUMBER

ANESTHESIA IN A SMALL HOSPITAL

MARVIN A. BRENNECKE, M. D.

THE N.Y. ACAD
OF MEDICIN

JUN 13 1944

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RUPTURE OF THE UTERUS

C. F. CHANG, M. D.

W. K. CHANG, M. D.

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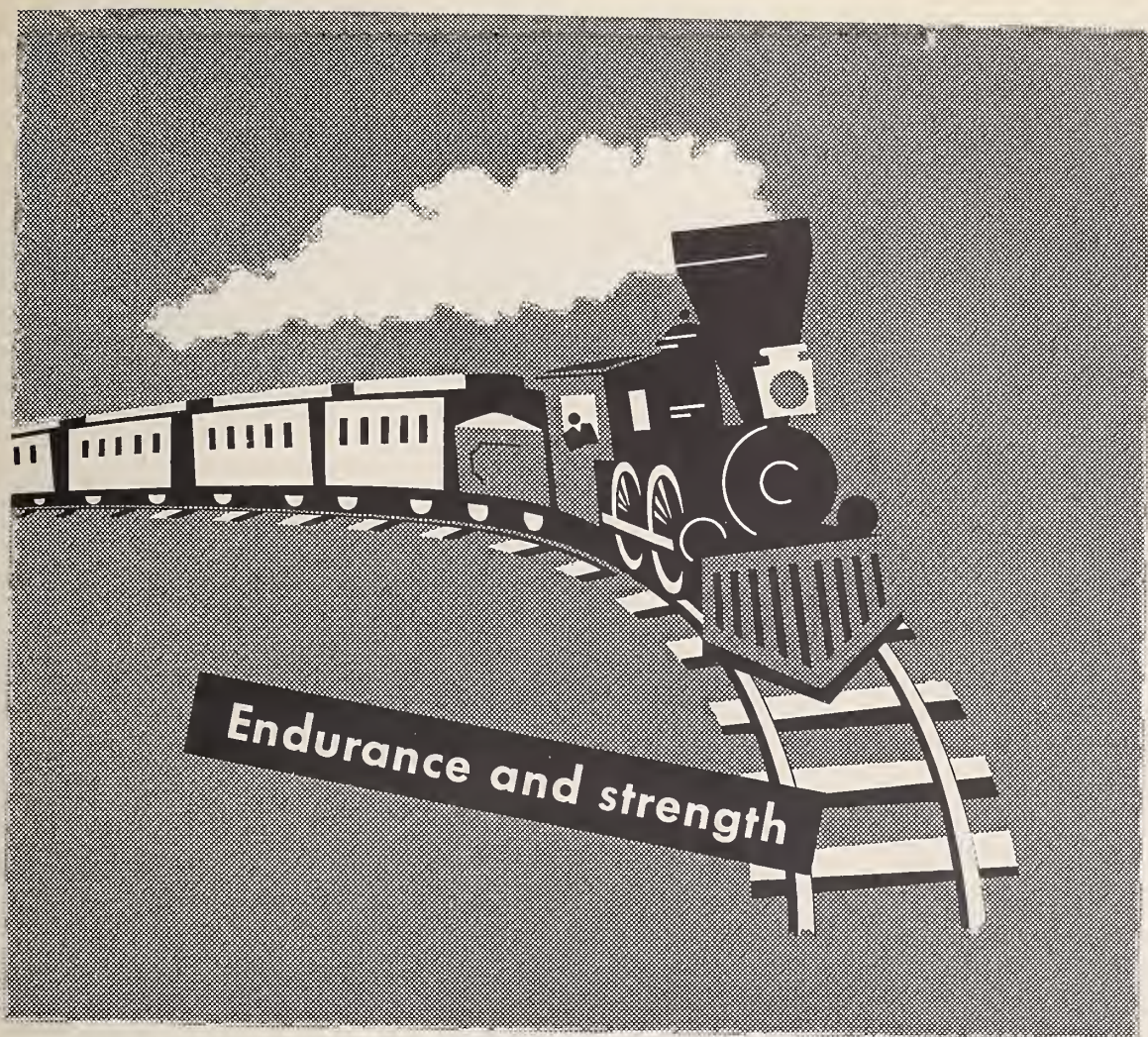


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TABLE OF CONTENTS

ANESTHESIA IN A SMALL HOSPITAL	CLINICAL NOTES
A Review of the Methods Used for a Period of One Year	INTENSIVE THERAPY OF INFECTIOUS SYPHILIS
Marvin A. Brennecke, M.D..... 159	Harold M. Johnson, M.D..... 175
PRIMARY CARCINOMA OF LIVER WITH HEMORRHAGE	TRANSMISSION OF GONORRHEA THROUGH BUCCAL COITUS
Report of a Case	Samuel D. Allison, M.D. Bernard Witlin, ScD..... 176
C. T. Young, Colonel, M.C., A.U.S..... 161	DERMATITIS FROM SHORTS
RUPTURE OF THE UTERUS	Frederick L. Schramm..... 177
Following a Previous Cesarean Section:	CLINICO-PATHOLOGICAL COMMENT
Review and Report of Two Cases	THE CLINICAL PATHOLOGIST
C. F. Chang, M.D., W. K. Chang, M.D..... 164	Louis Hirsch, M.D..... 183
EDITORIALS	NEUROPSYCHIATRIC COMMENT
PSYCHIATRIC FACILITIES 169	TWENTIETH CENTURY PSYCHIATRY
THE BEDSIDE NURSE 169	Wm. M. Shanahan, M.D..... 185
NEUROPSYCHIATRIC COMMENT 170	HOSPITAL NEEDS
MEDICAL SERVICE PLANS 170	Psychiatric Unit, Queen's Hospital Wm. M. Shanahan, M.D..... 187
	TERRITORIAL HOSPITAL: PROPOSED NEW UNIT
	O. F. Goddard..... 188
	COUNTY SOCIETY REPORTS 191
	NOTES AND NEWS 201

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it so far I have learned of no other suggestion which provides the necessary valve which such an arrangement would give. It would be tragic if a lot of business concerns were wrecked and workers thrown into idleness because of inability to cut through the red tape in getting their claims settled.

RESPONSIBILITIES OF CONTRACTORS

In making these statements with respect to action by the Federal authorities, I realize, also, that business concerns which war contracts have a responsibility on their part to facilitate speedy settlement of war contracts. They have the responsibility for preparing their claims accurately and speedily and presenting them in proper form. Some progress has been toward getting a recognition of the part that industry must play in this respect, and recently more and more experience of the part is now being gained. The congressional services of the Government, I know, have a very helpful attitude toward this situation, and the local office of W. P. E. has provided a regional advisory service for war contractors faced with problems resulting from termination. That is a very helpful element.

It is necessary to make possible the prompt termination of terminated war contracts as soon as it will be unsafe to wait until a deluge of contract terminations through legislation on short notice. The problem is too complicated to be dealt with effectively in that way.

MATERIALS FOR CIVILIAN PRODUCTION

In addition to making provision for the prompt termination of war contracts, there is the task of facilitating the flow of materials for civilian production as soon as materials can be spared from war production. I hope that we shall not have unemployment here in Massachusetts because of materials, which are physically available in the United States, are unavailable to manufacturers as a result of legal or administrative restrictions. The legislation vesting the priority power in the President, which power the President delegated to the Chairman of the War Production Board, is probably adequate to the flow of materials, but it may be necessary for the Congress to make sure that the administration of the priority power by the War Production Board is directed effectively toward the speedy and smooth resumption of civilian production. The War Production Board should be expected to eliminate limitation orders, conservation orders, and its allocation systems just as far as the needs of the war program per-

use of their effects. In plans for rearmament, I foresee that these problems of canceled contracts and securing supplies of raw materials for civilian production will presently be matters of wide concern here in Massachusetts.

To summarize, my specific recommendation is that legislation should be enacted for the following points:

SETTLEMENT OF TERMINATED WAR CONTRACTS

Terminated contracts should be settled by negotiation by the contracting agency, the Government, and the contractor. The settlement should be final in the absence of fraud or misrepresentation. Prompt partial payments amounting to a large percentage of the claim should be made to each contractor upon a preliminary statement of the claim. A penalty, to a penalty for perjury.

Special settlement committees should be authorized to authorize partial payments in the event of a delay of over 30 days occurs on the part of the Government agency.

4. Contracting agencies should be required to give prompt clearance of claims on work in process. There should be clear-cut procedures for authorizing the removal of Government-owned inventories and machines, with storage at Government expense, in order that civilian production may be started.

5. The dilemma of the subcontractors must be resolved. At the present time the Government exercises the right of approving all payments in settlement of subcontracts but does not assume any responsibility to the subcontractor, with the result that the subcontractor in many cases cannot secure action by either the prime contractor or the contracting agency. I suggest that the local settlement committees proposed above should be empowered to approve settlement of subcontracts if a delay occurs in approval by the contracting agency.

B. DECONTROL OF MATERIALS

1. As soon as war conditions permit, the rules for the release of raw materials should be revised with a view to facilitating the rapid resumption of civilian production.

A Magnificent Job

EXTENSION OF REMARKS

OF

HON. LOUIS LUDLOW

OF INDIANA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, January 11, 1944

Mr. LUDLOW. Mr. Speaker, Indianapolis and Indiana are very proud of the great pharmaceutical house of Eli Lilly & Co., which has processed its millionth blood donation without a cent of profit. This record is in keeping with the fine, generous spirit which this firm always has manifested in the service of our country and which long ago brought to it the recognition of an Army-Navy E award. Commenting on the company's contribution to the blood campaign, which means so much in saving the lives of our precious boys, the Indianapolis News says editorially:

LILLY'S CONTRIBUTION

In the midst of charges that some concerns are making an unholy profit from war contracts it is heartening to learn that the Indianapolis laboratories of Eli Lilly & Co. have processed 1,000,000 blood donations entirely on a nonprofit basis.

In addition to performing this service at cost, the expense involved has been decreased constantly through the introduction of more efficient methods.

There certainly could have been nothing unethical if the Indianapolis pharmaceutical house had sought a minimum profit for the work it has been doing.

Donations of blood at Atlanta, Chicago, St. Louis, Detroit, Cincinnati, Louisville, Columbus and Indianapolis have been converted into life-saving plasma at the Lilly plant, involving the installation of new equipment and the employment of much additional skilled personnel.

The patriotic Americans who donated this blood, however, got nothing for their contributions and the Lilly Co. determined that its connection with the effort to strengthen the wounded on every fighting front should be entirely shorn of private gain. From beginning to end, it has been and is—a magnificent job.

The Gates Must Not Be Closed

EXTENSION OF REMARKS

OF

HON. SAMUEL DICKSTEIN

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Tuesday, January 11, 1944

Mr. DICKSTEIN. Mr. Speaker, I leave to extend my remarks in the record, I include the following editorial from the Daily Mirror of January 4, 1944:

THE GATES MUST NOT BE CLOSED

When Congress reconvenes on January 11 it should take up the Gillette-Taft-Baldwin Rogers resolution.

This resolution calls for the formation of a Presidential commission to create machinery, in conjunction with the United Nations, to rescue the millions of Jews who are now being systematically exterminated by the Nazis and their quislings.

When the Presidential commission is formed, one of the first things it should do is to seek the abrogation of the Chamberlain "White Paper" of May 1939.

At present, Palestine is being administered by Great Britain in conformity with the policy embodied in the "White Paper," the terms of which Jewish immigration into Palestine is now limited and is to be stopped after March 31, 1944. The terms are to be reduced to a permanent minimum of 10 percent in the country and the number of Jews is to be practically prohibited.

A DIRECT REPUDIATION

This is a direct repudiation on the part of the League of Nations Mandate for Palestine incorporated in the Balfour Declaration of 1917.

According to this declaration, Palestine is to become a national Jewish home under the protection of Great Britain.

In 1919, after the Jews had created a modern civilization in what was practically an Arabian desert, England turned her back on her solemn promise of 1917.

This infidelity of Britain toward the Jews was denounced by no one more vigorously than by Winston Churchill in Parliament when he said:

MR. CHURCHILL'S REGRET

"As one intimately and responsibly concerned in the earlier stages of our policy, I could not stand by and see engagements into which Britain has entered before the world set aside for reasons of administrative convenience or for the quiet life. I should feel personally embarrassed in the most acute manner by my silence or inaction to what regard as an act of repudiation.

"I regret very much that the pledge of the Balfour Declaration, endorsed as it has been by successive governments, and the obligations under which we obtained the Mandate have both been violated by the Government proposals."

"I select one point upon which it is plainly a breach and repudiation of the Balfour Declaration—the provision that Jewish immigration can be stopped in 5 years by the decision of an Arab majority. A plain breach of a solemn obligation under the League of Nations Mandate was ordered by Great Britain herself without the consent of the League.

A SOLEMN OBLIGATION

But the League did not give its consent to the 1939 abrogation.

Anesthesia in a Small Hospital

A REVIEW OF THE METHODS USED FOR A PERIOD OF ONE YEAR

MARVIN A. BRENNER, M.D.

Waimea, Kauai

Methods of anesthesia occupy an important position in surgery. They determine the ease or difficulty with which an operative procedure is performed and they help to determine the postoperative course of the patient.

The purpose of this analysis is to obtain a composite view of the anesthetics used at a small hospital and to discuss the more important experiences with them.

VARIETIES OF ANESTHESIA

The 277 considered in this report were anesthetics distributed about equally between major and minor operative procedures.

I. Spinal Anesthesia	TOTAL	119	(42.9%)
A. Pontocaine Hydrochloride	77		(27.8%)
B. Procaine Hydrochloride	25		(9 %)
C. Continuous Spinal	12		(4.3%)
D. Pontocaine Glucose	4		(1.4%)
E. Nupercaine	1		(.4%)
II. Inhalation Anesthesia, Ether.....		44	(16 %)
III. Local Field Block.....		29	(10.5%)
IV. Local Infiltration		39	(14 %)
V. Nerve Block		12	(4.3%)
(Caudal, gasserian ganglion, maxillary, brachial plexus, cervical paravertebral, and thoracolumbar, paravertebral blocks.)			
VI. Sodium Pentothal Anesthesia.....		9	(3.2%)
VII. Avertin		4	(1.4%)
VIII. Twilight		7	(2.5%)
IX. Combination Anesthesia		2	(.8%)
X. Topical Application		12	(4.3%)

(The summary does not include the anesthetics used in obstetrical deliveries, of which there were 131 in the same period. From memory it is estimated that about 60 per cent of the cases were given perineal blocks at the area of the greater tuberosity of the ischium, about 10 per cent were given caudal blocks, and the other 30 per cent were given ether inhalations, local infiltrations, or no anesthesia.)

SPINAL ANESTHESIA

In spinal anesthesia for lower abdominal surgery, pontocaine hydrochloride was a better drug than novocaine hydrochloride because it was not as toxic to the patient and because it always gave sufficient length of anesthesia after it had once been established. Sometimes novocaine hydrochloride gave very poor and short-lasting anesthesia even though one was absolutely certain that the drug had been deposited in the subarachnoid space. This was shown definitely in one of the continuous spinal anesthetics where 850 mgm. of novocaine were given in a period of half an

hour without satisfactory anesthesia. Aspiration of the spinal fluid before each additional injection of 100 or 150 mgm. of novocaine indicated that the novocaine was being deposited into the subarachnoid space.

Pontocaine hydrochloride used alone was not always satisfactory in upper abdominal surgery. The combination of 1 per cent pontocaine hydrochloride with an equal amount of 10 per cent glucose was found to be a reliable method of anesthesia for the upper abdomen. The addition of the glucose makes the anesthetic solution heavier than the spinal fluid so that the tilting of the upper vertebral column downward will permit the fluid to gravitate until the desired level of anesthesia is obtained. Since better results were obtained with the use of continuous spinal anesthesia it will now supersede the pontocaine-glucose combination in upper abdominal surgery.

Nupercaine spinal anesthesia, according to the method of Howard Jones, was used only once. The use of this agent in the repair of a vesicovaginal fistula in the modified Kraske position seemed ideal because the prone position was used during the surgery. In routine operative work the hypobaric solution of Jones is cumbersome because the patient has to be turned face down until anesthesia is established. However, it does give the longest anesthesia of any of the spinal anesthetic drugs using the single dose method.

REGIONAL ANESTHESIA

Local field block and local infiltration are two ideal methods of anesthesia. Field block, which is the creation of a wall of anesthesia at a distance from the operative field, was used wherever possible in preference to local infiltration, which is the injection of the solution into the tissues to be cut. Field block gives a better anesthesia and technically permits a more perfect operative procedure.

Worthy of note is the local infiltration used in the three compression fractures of the spine. Twenty cc. of one-half per cent procaine were injected into the hematoma at the gibus. This hematoma was easily located by the prominence or exquisite tenderness of the injured spinous process. The diffusion of the solution into the fracture site gave excellent anesthesia. There is no danger of the solution's entering the subarachnoid space.

The fractures of each of the three patients were reduced easily by hyperextension of the spine, according to the method of Watson Jones, and then immobilized by the application of an unpadded cast.

Methods of nerve block were not used as often as their merit deserves. With the exception of the caudal, they are time-consuming to perform, and as a result they were discarded in favor of spinal anesthesia. The paravertebral thoracolumbar block, in an elderly toxic patient with a strangulated inguinal hernia, gave excellent anesthesia and the patient had an uncomplicated postoperative course. Paravertebral cervical block for the two thyroidectomies this year gave a better anesthesia than local infiltration or local field block in previous thyroidectomies.

MISCELLANEOUS CONSIDERATIONS

Pentothal sodium is an excellent general anesthetic, but it is not without danger. Long and Ochsner¹ reported seven deaths attributable directly to the anesthetic agent in a collection of 54,851 cases. Pure oxygen must always be available at the side of the patient during the anesthesia. Our routine is to give oxygen by nasal catheter during every pentothal anesthesia. Respiratory depression is marked and any increase in alveolar oxygen is an added safeguard.

Twilight analgesia was a particularly good method for dilatation and curettage in the menopause age group. For encephalograms it was preferable to pentothal sodium or avertin.

The topical applications were made mostly with four per cent metycaine.

CONTINUOUS SPINAL ANESTHESIA

The most important advance in methods of anesthesia during the past year at this hospital was the addition of continuous or fractional spinal anesthesia to our armamentarium. It is safer than the single dose method. If the anesthesia extends too high, the drug may be removed quickly. Small amounts may be given with good anesthesia and repeated as necessary. A ruptured duodenal ulcer was closed by the use of only 100 mgm. of novocaine, consisting of two injections of 50 mgm. each, given twenty minutes apart. The anesthesia may be prolonged as long as necessary. In one case, in which the operation lasted five hours and required 600 mgm. of novocaine, the anesthesia was excellent throughout. Usually about 50 mgm. of novocaine are injected every twenty minutes. Ampules of novocaine containing 300 or 500 mgm. are used. The 300 mgm. are dissolved in 6 cc., or the 500 mgm. in 10 cc., of spinal fluid. This makes a five per cent solution. Each cubic centimeter then

contains 50 mgm. of novocaine. The anesthesia is started either with 50 or 100 mgm. depending on the anesthetist's evaluation of the patient.

ANOXEMIA

Anoxemia is a hidden danger on the operating table. Imperceptible anoxemia during sleep from a hypnotic will cause no harm; imperceptible anoxemia during a short operation will cause no damage; but imperceptible anoxemia during a long operation will cause shock. All cases of extensive or poor-risk surgery were given oropharyngeal oxygen. This gives about fifty per cent concentration of oxygen with a flow of six to eight liters per minute.²

It was surprising many times to note the increase in redness of the tissues after the administration of the oxygen, when previous to this, the blood had seemed a normal color. For these reasons, we will continue to use liberally pure oxygen as a supplement to any type of anesthesia.

ETHER

All the ether anesthetics were used for tonsillectomies. Ether anesthesia was not used in major surgery except as a complement to local field block in a child for an appendectomy for an acute appendicitis.

SUMMARY

A series of 277 anesthetics divided about equally between major and minor operative procedures used at a small hospital in the past year are reviewed.

In lower abdominal surgery, pontocaine hydrochloride was more reliable than novocaine hydrochloride in the single dose method of spinal anesthesia.

In upper abdominal surgery the combination of pontocaine and glucose was more reliable than pontocaine alone.

Continuous spinal anesthesia with novocaine hydrochloride was a very important addition to our methods of anesthesia and was found to be the best spinal anesthetic for upper abdominal surgery.

The use of high concentrations of oxygen with any type of anesthesia has proved to be a valuable safeguard against hidden anoxemia.

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1. Long, C. H. and Ochsner, A.: Intravenous Pentothal Sodium Anesthesia, A Review of the Literature, *Surgery* 11:474 (March), 1942.
2. Andrews, Jr., A. H.: *Manual of Oxygen Therapy Techniques*, The Year Book Publishers, Inc., Chicago, Page 109.

Primary Carcinoma of Liver with Hemorrhage

REPORT OF A CASE

C. T. YOUNG, COLONEL, M.C., A.U.S.

Primary carcinoma of the liver is rare. The occurrence of massive hemorrhage from an eroded vessel from a liver so involved, with resultant profound shock, as occurred in this case, is most infrequent. The rarity of the condition is exemplified by scant reference to same in the literature.

REPORT OF CASE

Clinical History: The patient was a white Puerto Rican male, aged 39 years, soldier, who was first hospitalized February 3, 1940, because of sudden onset of acute pain in the right upper quadrant and rapidly developing prostration.

There was no family history of cancer or other significant history of importance.

Past and Present History: Patient had measles, mumps, chickenpox and whooping cough when a child, without complications. Patient denied having had previous illness of any consequence excepting acute bronchitis in 1921, from which there were no residuals. There was no history of fractures, injuries or operations. Patient admitted drinking alcohol occasionally, about once or twice a week. He had done this for about fifteen years.

Patient gave history of being in good health until the sudden onset of symptoms February 3, 1940, resulting in immediate hospitalization. He denied having symptoms of any kind until the morning of above date. The pain in right upper quadrant was first noted while patient was walking along the street. He insisted he did not fall or sustain a blow or incur an injury of any kind. It became rapidly worse, so he started walking toward the station Dispensary, but before he had gone very far, he felt so faint because of the increasing severity of the pain, that he was carried the remainder of the way.

Patient was sent to the hospital immediately. He was in profound shock at the time of admission to the hospital and became unconscious shortly after his arrival. Examination revealed evidence of an acute surgical abdomen, with muscle rigidity and tenderness, most marked in the right upper quadrant. Due to the profound shock, patient was given intensive supportive treatment for same, including an immediate transfusion of 500 cc. of citrated blood, prior to being taken to operating room, where a laparotomy was performed. Much free fresh blood in peritoneal sac, and a small rent of the anterior superior surface of the right lobe of liver, which was the site of bleeding, was found. The rent of the liver was sutured with ribbon gut and the wound tightly packed with pressure applied over involved area. The wound was drained with Penrose drains. Examination of the liver at operation revealed the presence of what the operator considered to be an early cirrhosis of liver.

The patient's course was quite stormy for ten days. Copious bloody drainage persisted, at first, but decreased rapidly in a few days. On February 5, 1940, the pack was removed and wound was strapped tightly. His temperature range was from 100 to 102 F. in this period, excepting for three occasions when it rose to 103 F. After the above period, febrile reaction between 99.6 to 101 degrees, especially in afternoon, for several more weeks was noted.

Approved for publication by the Department of Public Relations, War Department, Washington, D. C.

Examination of the abdomen in the above period revealed gradually decreasing abdominal distension, but free peritoneal fluid persisted in the flanks. It finally did disappear about the eighth week. A mild degree of icterus developed. Stools were clay-colored. The patient continued to improve, but the drains to the right kidney pocket were left in place until February 15, 1940.

The patient gradually regained strength and was able to sit up at the beginning of the fifth week in the hospital. Convalescence was slow. The ventral hernia that was evident was due to packing and drains necessarily left in the wound after operation.

By April 14, 1940, the patient was semi-ambulant. He denied all symptoms except some tenderness at wound site, and the resultant weakness, which was to be expected. His weight, which was normally 200 pounds, was now 175 pounds.

As he gradually regained strength, he was sent to quarters May 4, 1940, with strict orders as to diet, rest, and frequent checks as to physical condition.

Patient's return to duty on July 29, 1940, was unattended with any reaction. He was a Staff Sergeant of seventeen years' service, doing clerical work largely, also living in quarters with his family, so he was in a position to avoid stress and strain. He was most desirous of continuing to do some type of duty.

He continued to lose weight slowly, occasionally had pain in right lower chest anteriorly, fatigued more easily, and developed an intolerance for highly seasoned or fried foods in subsequent months and in the early part of 1941, and finally found it necessary to spend all of his spare time resting, in order to have the necessary energy for the next day's work. In April 1941, he developed a mild, persistent, chronic, productive cough, which precipitated pain in the right lower chest. Sputum was scant and mucoid in character. Shortly thereafter, he developed a mild dull but persistent right upper quadrant pain. The elastic support which he used to support the ventral hernia seemed to become increasingly tighter, he admitted later, and was so uncomfortable at times that he started to dispense with it on several occasions. He noticed his abdomen seemed larger, and attributed increasing tightness of elastic support to this fact.

By August 23, 1941, he finally admitted being so weak, and was experiencing so much pain in the right upper quadrant and lower lateral aspect of right thorax, especially when he attempted to do anything necessitating exertion, that he was finally forced to seek medical assistance again. His appetite had become increasingly poor and he tolerated many foods poorly, especially highly seasoned, fatty or fried foods. Nausea, vomiting and abdominal discomfort were accentuated by above.

In addition to the above symptoms, the patient complained of generalized abdominal soreness, palpitation of heart and dyspnea on exertion, felt feverish, was extremely weak, and had again become mildly icteric. No precordial pain was present. The localized right upper quadrant pain did not radiate. The stools were clay-colored. He developed mild nocturia, frequency and some burning on micturition. Whereas before, he had always minimized complaints, he now admittedly was apprehensive about his state of health. He slept poorly.

Physical Examination: Patient was mildly icteric on admission to the hospital. Temperature on admission to hospital on August 23, 1941, was 102.4 F. Pulse rate was 112, and respirations were 26, per minute. Blood pressure was 128/74. Both diaphragms were high; right diaphragm was at the fifth rib level anteriorly and eighth rib level posteriorly. Excursion was readily demonstrable. Breath sounds were clear and easily heard over both lung fields. Vocal resonance and tactile fremitus were normal at time of admission to hospital. Evidence of massive pleural effusion, right, developed on August 25, 1941, two days later. Abdomen: Dilated veins were noted on lateral aspect of abdomen, bilaterally. The liver was very large, extending four fingers-breadth below right costal margin. On palpation, moderate tenderness was noted. It felt hard and irregular. Nodules could be felt. A ventral hernia was present at the site of the old wound, which made palpation of liver easier, due to the thin abdominal wall. Gall bladder was not felt. Spleen and kidneys were not palpable. No tenderness was elicited on palpation of the lower abdomen. Careful routine physical examination was otherwise normal.

Laboratory Work: On initial admission in February 1940, there was evidence of only a mild anemia, even though there was profuse hemorrhage. The leukocyte count was temporarily slightly elevated. The sedimentation rate was moderately accelerated, being 23 mm. in 60 minutes. Icterus index rose to 30, but finally returned to normal. The blood picture was difficult to evaluate because of a number of transfusions, but it appeared patient had mild secondary anemia. On August 24, 1941, the erythrocyte count was 3,910,000, the leukocyte count was 21,000 and hemoglobin was 75%. The differential count was: polymorphonuclears 84 per cent and lymphocytes 16 per cent. Urinalysis on second admission showed presence of 1 plus albuminuria and a positive urobilinogen. Urine was otherwise normal. Blood picture on August 27, 1941 was: Blood platelets 490,000; clotting time 3½ minutes; bleeding time 2 minutes. Leukocyte count remained between 15,000 and 22,000 over the next few weeks. Erythrocyte count, following transfusions, gradually rose to 4,320,000 and 80 per cent hemoglobin. The differential spread showed little change from that noted above. Blood chemistry was: NPN 29, sugar 111 mgm. per cent. Icterus index, which was 14 at time of admission, rose to 38 by September 22, 1941. Van den Bergh's Test showed a diphasic direct reaction.

Blood Kahn and Wassermann were negative. Culture and smear of serosanguinous fluid from right thoracic cavity were negative for neoplastic cells or micro-organisms. The X-rays of the chest taken initially August 23, 1941, showed the right diaphragm very high, at about the fourth rib level anteriorly and sixth rib level posteriorly. The right diaphragm was slightly irregular and roughened; both lung fields were clear. The heart shadow was slightly displaced to the left, but was otherwise normal. X-ray of the chest taken August 26, 1941, showed the entire right lung field to be obscured by massive pleural effusion. The heart shadow was pushed more to the left side, being displaced about 1½ inches. The left lung field remained clear. Subsequent X-rays taken on September 2, September 30 and November 2, 1941, showed the right lung field to be entirely obscured by the presence of fluid in the right pleural sac. On November 2, 1941, there was a small amount of pneumonic infiltration in the lower lobe, left. Gastro-intestinal series on October 7, 1941, showed deviation of the esophagus to the left about 2 inches. Stomach and small intestines were normal. In all fluoroscopic and X-ray examinations, patient was noted as having a very large liver, considered to be twice as large as normal.

Clinical Course: The course of this patient after admission to the hospital was rapidly downhill. Of most interest is the fact that one day after admission to hospital, on August 24, 1941, he became much worse and complained of right upper quadrant pain. Patient's condition at this time was quite poor, pulse was 132, temperature 102 F. and blood

pressure 108/72. The patient was watched carefully because of the unusually high fixed right diaphragm; pus under the right diaphragm was suspected.

Exploratory aspiration was deemed advisable. The needle was inserted below the demonstrated diaphragm level, in the mid-scapular line on the right, between the seventh and eighth ribs. Bright red blood was easily aspirated from this point. At post mortem a hematoma was noted over the posterior inferior aspect of the liver, from the site where above aspiration was accomplished. There was apparently an erosion of a vessel by a cancerous growth, with resultant bleeding. Apparently the bleeding was self-limited because patient's condition under supportive therapy soon began to improve.

A massive pleural effusion, right, developed shortly thereafter, on August 26, 1941. Tenderness continued to persist and jaundice became deeper. The liver was twice as large as normal. There was increasing ascites and definitely progressive lower extremity edema. Jaundice, emaciation and right upper quadrant tenderness increased in degree in October 1941. The fever range was from 100 to 101 F. The patient became delirious on October 27 and retrogressed with increasing rapidity. He died on November 3, 1941. Clinical diagnosis of primary carcinoma of liver was made. Metastasis was not demonstrable clinically.

Necropsy: Three thousand cubic centimeters of slightly blood-tinged ascitic fluid was present in the peritoneal sac. The right diaphragm was at level of the third rib. There was 1,000 cc. of amber-colored fluid in the right pleural sac. The right lung was largely atelectatic as a result of above mentioned compression. The left lung showed evidence of a small area of lobular pneumonia in upper portion of lower lobe. The liver weighed 3,470 grams. On the inferior surface of the liver the viscera were attached by fibrinous adhesions. The general appearance of the liver was completely distorted. Numerous projections of bile-stained neoplastic masses were noted on external examination. Section of liver revealed generalized involvement of the entire organ. The whole cut surface in whatever plane section was made revealed round bile-stained masses plainly demarcated from remaining liver substance. Hemorrhagic necrosis was present centrally in a number of large nodules in the right lobe. The nodules measured 2.5 to 6.5 cm. in diameter. Some were larger. The larger veins were carefully inspected, but were not invaded. There was no metastasis to other organs.

The spleen weighed 290 grams, being somewhat larger than usual. All other organs were normal.

Microscopic examination revealed extensive replacement of parenchyma by carcinomatous nodules. Larger cells of the 'liver cell' type were seen in the liver. The cells were more basophilic than the native liver cells. These large cells were very analogous to liver cells, though more irregular. There was some variation in size of cell. There was moderate increase of the supporting stroma. Fibrous strands from the portal zone mostly separated the neoplastic masses into lobules. Evidence of cirrhotic liver changes were present. A number of nests of these neoplastic liver cells were present.

The diaphragm showed dense fibrous connective tissue to be increased with lymphocytic infiltration just beneath the muscle layer. In one of the lymph channels, cells resembling liver cells were noted. No evidence of neoplasm microscopically could be found elsewhere.

COMMENT

The prevalence of primary carcinoma of the liver is revealed in statistics compiled by Charache in a larger series of cases which he reviewed. A percentage of 0.506, or 808 cases out of 159,762 autopsies, were reported. About 1,150 cases of primary carcinoma

have been reported in the literature. It occurs usually in the fifth and sixth decades of life. This patient was 39 years old. However, it also occurs in much earlier years, though less frequently. Eggel collected 14 cases in patients with ages ranging from 21 to 67 years. It may even occur in infancy and childhood.

The condition is more common among Orientals. In parts of China, especially the southern portion, the prevalence of liver flukes with consequent liver irritation, some think, may be a cause of cirrhosis of liver. The occurrence of primary carcinoma of the liver appears to be a direct sequel of, or essentially connected with, cirrhosis. Rolleston thinks it is the outcome of hyperplasia of liver cells. It has been found by investigators to be correlated with as high as 75 per cent to 85 per cent of cases in primary carcinoma of the liver. In this case, the term "carcinomatous cirrhosis" is appropriate.

It is pertinent to say here that cirrhosis of the liver is a pathologic term denoting development of new fibrous tissue in the liver, irrespective of its cause or its type. Many cases of cirrhosis do not become cancerous. In portal cirrhosis, degeneration of liver cells of periphery of lobules and regenerative hyperplasia of remaining liver cells and bile ducts with proliferation of interstitial tissue and contraction takes place. Pericellular cirrhosis is characteristic of a congenital syphilitic liver. It is thought biliary cirrhosis results from hepatitis set up by infection and obstruction of the bile ducts. Primary carcinoma of the liver is anatomically classified as the nodular form, which is commonest and is characteristic of this case; the massive and the diffuse forms are less common. Histologically, these tumors are classified as hepatoma, denoting those which arise from the parenchymatous liver cells, which is characteristic of this case; and the cholangioma, denoting those tumors which arise from the epithelium of the bile ducts. Hepatomas are five times more common than cholangiomas.

There are very few cases of spontaneous bleeding from neoplastic livers on record. Bleeding is explainable when one considers the friability of the

diseased tissue and also the highly vascular liver tissue in which the neoplastic changes take place. Erosion of a vessel undoubtedly is common, but the bleeding is usually self-limited. Hemorrhagic changes in the cancerous nodules are reported fairly often, but extensive hemorrhage into the peritoneal cavity, from the rupture of some softened nodule located peripherally, is reported most infrequently. It is unusual that bleeding is not observed more often when extensive neoplastic changes take place. Undoubtedly, bleeding does occur, especially if there are even slight injuries.

The few cases to which references were found in the literature were in the majority of instances, fatal almost immediately or shortly thereafter, as a result of the hemorrhage. Erosion of a vessel, due to proximity of degenerative eroding carcinomatous process or actual rent of liver substance itself, was the anatomical description of the gross lesion given by various authors describing the anatomical lesion. The dissecting power of a massive hemorrhage in diseased liver tissue could readily explain "rent" or "split" in the peripheral portion of the liver.

It is well for physicians having patients with neoplastic liver disease to keep in mind this possible complication and its usually rapidly fatal outcome. It is referred to so infrequently in the literature that it is apt to be overlooked as a possibility.

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Rupture of the Uterus

FOLLOWING A PREVIOUS CESAREAN SECTION: REVIEW AND REPORT OF TWO CASES

C. F. CHANG, M.D., AND W. K. CHANG, M.D.

Honolulu

Rupture of the uterus, an infrequent obstetrical complication, is a hazardous condition which potentially confronts an obstetrician in the presence of dystocia, contracted pelvis, abnormal fetal presentations, multiparity, previous scars in the uterus and abnormal anatomical states. Valuable time is sacrificed with an increased risk to the child and to the mother unless uterine rupture is thought of and a well conceived plan of action to meet the emergency is available. This is especially true in those mothers previously subjected to a cesarean section.

ETIOLOGY

Cooke¹ has classified rupture of the uterus etiologically as:

1. Spontaneous, rupture resulting from
 - a. Inherent weaknesses of the uterine wall,
 - b. Abnormal thinning-out of a portion of the uterus due to excessively powerful contractions with or without obstruction,
 - c. A combination of both.
2. Direct violence or trauma.

The inherent weaknesses of the uterine wall may be due to anatomical maldevelopments; abnormal anatomical conditions, including extensive adhesions, retroversions or hyperantelexion; trophic changes as hypoplasia, subinvolution, fibrosis, atrophy; traumatic lesions resulting from uterine operations; inflammatory lesions; neoplasms; and obstetrical causes including hydramnion, multiple pregnancy, premature separation of the placenta, placenta previa, placenta accreta or hydatidiform mole.

Studies on the incidence of rupture of the uterus place the condition as occurring in from 2 per cent to 6 per cent or higher of all cases following previous cesarean section.

Kletzhandler² reviewed 268 articles on uterine rupture after a cesarean section and found a total of 392 cases as follows:

TYPE OF CESAREAN SECTION	CASES
Classical section	141
Transverse fundal incision.....	55
Cervical longitudinal incision.....	87
Cervical transverse incision.....	5
Type unknown	104
Total cases	392

Gelle³, in a review of all available cases of cervical

cesarean sections, estimated that uterine rupture occurs in 0.25 per cent of all cases, or about one-sixteenth of that following classical section. In 33 cases of the condition in the last twenty years at the Boston City Hospital, 6 cases were the result of previous cesarean sections (Lynch⁴). Seldon⁵ found that at the Boston Lying-In Hospital 27.3 per cent of all ruptures of the uterus had been preceded by a cesarean operation. Acken Jr.,⁶ reports 8 out of 15 cases of rupture of the pregnant uterus following previous sections at the Brooklyn Methodist Episcopal Hospital. Eighteen or 40 per cent of all ruptures of the uterus followed a previous cesarean operation, according to Burkons⁷, in forty-one Ohio hospitals. Potters of Buffalo, in a survey by McDowell's, had an incidence of 51 (1.5 per cent) spontaneous ruptures in 3,300 classical cesarean sections.

Many interesting anatomical studies of the classical cesarean scar have been made. Elton⁸ presents an excellent study of the histopathology of the classical cesarean section scar in 16 specimens and offers a theory on the mechanism of rupture of the uterus in subsequent pregnancies. Losee⁹ found that when rupture occurred, the rupture invariably involved the site of the former scar rather than the adjoining wall, but healing in a sectioned uterus was often so complete that the scar site became indistinguishable.

DIAGNOSIS

In almost all cases of rupture of the uterus, a diagnosis can be made comparatively easily and promptly in those patients with a history of a previous cesarean section. The classical signs and symptoms of rupture are exhibited in all cases—sudden abdominal pain preceded by a few weak labor pains, abdominal rigidity, tenderness especially over the previous cesarean scar, decreasing blood pressure and a rapid and thready pulse. Signs of external bleeding and rupture of the membrane may or may not be exhibited.

PREVENTION

The most important feature of the treatment of rupture of the uterus is prevention. In any patient who has been subjected to a cesarean section, particularly a classical cesarean section, it requires considerable consideration. It is imperative that every such woman should be very closely watched at all times during her pregnancy and especially during the last two or three months for evidences of impending or actual rupture. In our clinic, prenatal examinations

are done weekly during the last trimester. Any unusual abdominal pain or discomfort occurring in the terminal period of pregnancy should be closely checked. Full cooperation of the patient and constant vigilance of the physician are absolutely necessary.

MANAGEMENT

The cardinal principles of treatment of actual secondary rupture of the uterus consist of: (1) treatment of shock, (2) immediate cesarean section, (3) suture of the rupture of the scar, or hysterectomy. It is probably best that the uterus be preserved, bearing in mind the possibility of rupture in subsequent pregnancies, in those patients without any children or having only one. If repair of the uterus is elected, delivery should be an elective section with tubal sterilization or hysterectomy about two to three weeks before the expected date of confinement in a subsequent pregnancy.

In four months, we have been confronted with two cases of rupture of the uterus following previous cesarean section. In both instances, with emergency shock therapy and immediate cesarean section, the mothers were saved, but with loss of the babies. It is open to question, in our first case, whether we would have been able to save the infant were emergency war precautions not existent with the reduction in automobile speed limits under the necessary "blacked out" conditions. In our second case, the crowded public conveyance, a common war time occurrence, contributed the traumatic etiology instituting the uterine cramps and the disastrous finale. In both cases, the patients were given the necessary preventive measures against rupture with more than adequate visits to our clinic.

REPORT OF CASES

CASE 1. Mrs. G. M., a 23-year-old Chinese housewife, gravida 2, para 1, was first seen in our clinic on March 19, 1943. Her last menstrual period occurred December 24, 1942, making her expected date of delivery October 1, 1943. Her first pregnancy terminated in a classical cesarian section on July 23, 1941 with the delivery of an anencephalic infant which expired within twenty-four hours.

Physical examination and laboratory studies, including Kline and Kolmer tests, were normal. A well healed lower midline scar was visible. The fundus extended four centimeters below the umbilicus. Fetal heart tones were not audible.

Progress of the pregnancy was uneventful. Prenatal visits were made monthly up to her seventh and a half month and then biweekly. She was seen last August 16, 1943, and instructed to return weekly thereafter.

At 6 p.m., August 23, 1943, she began to experience light uterine cramps which gradually increased in severity and regularity and duration. She started out from Pearl City at 8 p.m., taking two hours, due to black-out restrictions, to arrive in the hospital. On entrance, the labor pains had subsided, pain being limited to the area over her incision. One of us (C.F.C.) was called when the patient's blood

pressure suddenly fell to 80/0 from 126/80 a few minutes after admission. On examination, the patient was conscious and complaining of severe pain over the incisional area. She displayed the classical signs of uterine rupture. No fetal heart tones were audible. She was given 1,000 cc. of 10 per cent glucose in lactate-Ringer solution followed by 250 cc. of blood plasma. A cesarian section was done under nitrous oxide-oxygen anesthesia. The abdominal cavity was filled with large amounts of clotted blood. The uterine rupture was through the previous classical scar. A non-viable fetus was delivered. In view of the patient's condition and her childless status, the uterus was simply repaired.

The patient was given 1,000 cc. of citrated bank blood one-half hour after surgery, the delay being due to the absence of the necessary blood in the hospital. The recovery was uneventful. The patient was discharged fourteen days post-operatively in good condition.

CASE 2. Mrs. F. E., a 17-year-old Filipina housewife, gravida 2, para 1, was first seen in our clinic June 6, 1943. Her menarche last occurred May 2, 1943, making her expected date of confinement February 9, 1944. She had had a cesarian section done on the island of Hawaii in 1943, due to "baby too big," with the delivery of a viable male infant.

Physical examination was normal except for a definitely gynecoid pelvis. Laboratory studies were normal. Her serologic test for syphilis was negative.

The patient was seen monthly in our clinic from June to October, 1943. She was seen three times in November and weekly in December and January. The patient was cautioned continuously of the dangers of uterine rupture and instructed to call our clinic under any circumstance, which she did twice; each time, examination concluded in a diagnosis of "gas pains."

On January 4, 1944, approximately one month before her estimated date of delivery, she was seen in our clinic. She was advised to get an x-ray of her pelvis at The Queen's Hospital, which she did and to make preparations to enter the hospital the next day. On her way home from the hospital, she was jostled about in the crowded public bus. Between 5 and 6 p.m. that evening, she began to experience pain over her old incision. She refrained from calling the doctor. At 10:30 p.m., after her neighbors had tried vainly to "hold her abdomen to quiet the pains," the attending physician (C.F.C.) was called. She was advised to enter the hospital immediately.

On admission into the hospital at 11 p.m., 5 to 6 hours after onset of pain, the blood pressure was 100/56, pulse 140, and the patient was exhibiting the cardinal signs of rupture of the uterus. No fetal heart tones were audible.

Shock therapy was immediately instituted with administration of 1,000 cc. of 10 per cent glucose in lactate-Ringer solution intravenously followed by 250 cc. of blood plasma. One thousand cc. of citrated bank blood was given during surgery, plus 3 cc. of cortin and $\frac{3}{8}$ grain of ephedrine sulfate.

An immediate cesarian section was done under local anesthesia. The abdomen was filled with fluid blood. The fetus, with membranes intact, and the placenta, were lying free in the abdominal cavity, having been extruded through a rent in the previous classical cesarian scar. A stillborn male infant was delivered. The defect in the uterus was repaired. A tubal sterilization was done. More radical treatment was not instituted in view of the husband's definite objections to removal of the uterus, consent for sterilization being obtained only with great difficulty.

Recovery was uneventful. The patient was discharged fourteen days after surgery.

CONCLUSIONS

1. Rupture of the uterus following a previous cesarean section is not uncommon.
2. The diagnosis is comparatively easily made.
3. The cardinal principle in treatment is prevention; in actual rupture, emergency shock therapy and immediate cesarean section should be carried out.
4. Two cases of rupture of the uterus following previous classical cesarean section with loss of the infants and saving of the mothers are presented.

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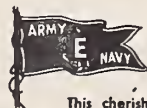
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* *Laryngoscope*, Feb. 1935, Vol XLV, No. 2, 149-154

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EDITORIALS

PSYCHIATRIC FACILITIES

The plans and needs of the Territorial Hospital and the Psychiatric Unit at The Queen's Hospital are presented concomitantly in this issue of the JOURNAL under *Hospital Needs* so that they will be considered together as part of the same picture. There is no attempt at competition in this presentation, rather it is made thus in the conviction that the plans of both are justified.

The Territorial Hospital facilities in general have long been known to be inadequate numerically, and as affording too-limited treatment facilities for recoverable patients, both as to methods and staff, also in its lack of provision for the separation of recoverable patients in surroundings conducive to good prognosis from those whose chances of being returned to the community are hopeless.

The addition of the unit planned for the Territorial Hospital at Kaneohe, does not rule out the need in Honolulu, the center of population, for a short-term treatment unit, which could rightly be regarded as a public health measure of disease prevention, operated in connection with a general hospital where persons may be admitted without court proceedings, and, on observation as it were, to see if prolonged hospitalization and treatment will be required before committing such person to the Territorial Hospital. The psychiatric clinic at The Queen's Hospital functions very much as a sieve, giving merely out-patient service to many, hospitalization to those who, it is felt, will respond to a few weeks of treatment, and sending on to the Territorial Hospital the cases requiring prolonged treatment and hospitalization.

Let there be no fear that the 50-bed unit proposed for The Queen's Hospital, together with the facilities planned for the Territorial Hospital, will in any way afford a surplus of beds needed by the Territory for psychiatric patients.

THE BEDSIDE NURSE

In the desperate shortage of bedside nurses for the civilian sick in hospitals and in patients' homes in this country, the profession of hospital administration bears a heavy burden of responsibility, in the opinion of Dr. E. M. Bluestone, director of Montefiore Hospital, New York. It must be obvious to the student of social phenomena, he says, that we have blundered in our planning.

It cannot be said that this shortage is altogether a war casualty, since the centrifugal tendency away from the bedside existed for many years prior to Pearl Harbor and, moreover, placed its handwriting on the wall. The argument about military necessity has been over-emphasized, at the expense of the gallant corpsmen in the forward military areas whose record for nursing bravery is beyond all question.

In our praiseworthy efforts to raise the dignity of the nursing profession, while placing it on a higher economic plane, we seem to have been misled into believing that nursing belongs to the learned professions. The end result of this theory can now be seen in an advertisement which recently appeared in several New York newspapers:

"WANTED—Women to help with the sick. Experience not necessary. Day or night duty. Living in or out. Part or full-time. Excellent wages."

After all, we owe a duty to the helpless sick, and this is what we shall have to take if the profession of nursing, as we have known it throughout our generation, moves away from the bedside to more exalted spheres.

We are learning the hard way that a highly educated nurse is not a better nurse by virtue of her superior education. It is only fair to the patients, and chivalrous to the bedside worker, to draw the proper conclusions from this simple statement.

NEUROPSYCHIATRIC COMMENT

A new section has been added to our Journal—NEUROPSYCHIATRIC COMMENT—introduced in this issue by William M. Shanahan, M.D., with an article entitled, *Twentieth Century Psychiatry*. The section is sponsored by the Psychiatric Committee of the Hawaii Territorial Medical Association through which it is planned to have all papers submitted. Physicians wishing to contribute material on psychiatric or neurology are requested to communicate with Dr. R. B. Cloward, Dr. William Shanahan, or the chairman, Dr. R. D. Kepner.

 MEDICAL SERVICE PLANS

The reopening for discussion of a uniform medical service plan throughout the Territory at the Council meeting on November 11, 1943 has been productive of very interesting results.

It may be recalled that there was discussion of a plantation health plan the latter half of 1941 with comments published in the September and November issues of the HAWAII MEDICAL JOURNAL.

We had come to the place where the Oahu branch of the Territorial Association of Plantation Physicians agreed in principle to a plan being drawn up by the Hawaii Medical Service Association for Oahu plantations. The plantation physicians suggested certain modifications in the existing HMSA plan and reserved agreement with an HMSA plan until presented in complete form and an opportunity had been given them to discuss it fully. A special committee of the HMSA was appointed at that time to discuss the matter with the Health Committee of the Hawaiian Sugar Planters Association, but at that point the war intervened and it was thought unwise to pursue the matter further.

In November 1943 it became apparent that activity had been renewed for the adoption by some of the plantations of some form of pre-paid insurance plan for their skilled employees, and the Council renewed its efforts for a uniform plan throughout the Territory. Since there is interrelation of medical services between the plantations and between plantation employees and the physicians in adjacent towns, as well as patients from the outer islands coming to Honolulu for hospitalization and medical treatment, it seemed undesirable to have a miscellany of plans and fee schedules operating throughout the Territory.

On Oahu three medical service plans had already gone through a trial period of three years—the Kahuku plan, the Aiea plan and the HMSA plan. The experiences of these, it was felt, might well be a guide in the setting up of a plan for the plantations. An

analysis of several features of these three plans was sent out to the county societies and the plantation physicians.

The HMSA has since been successful in placing its plan in the Honolulu Sugar Company's plantation at Aiea on a six months trial basis. Eighty-six per cent of the eligible employees joined at the start. The features of the plan adopted at Aiea are identical with the plan in operation throughout Honolulu and is ably set forth in the April 1944 issue of *Plantation Health*.

The HMSA plan has certain limitations, exclusions and waiting periods which it is not ready to modify until it has gathered sufficient experience and actuarial data to justify their modification. Therefore, to give the plantation employees full coverage, the Aiea plantation has superimposed a plan which operates hand-in-hand with the HMSA plan supplementing the HMSA plan's standard coverage, this is described in *Plantation Health*.

This experiment has the approval of the Health Committee of the HSPA and of the Territorial Medical Association and the outcome of the six months' period will be interesting as well to the plantation managers and the medical profession throughout the Territory. It will yield valuable experience in proving its adaptability to the plantation set-up and be a guide to a uniform plan for the Territory.

Meanwhile the other islands have sent in evidence of giving this matter serious thought and there is submitted for the record the response from Kauai and Maui and a verbatim report of Hawaii County's deliberations on the subject of the HMSA plan and medical service plans in general. We recommend this latter to your careful reading, it covers the subject so well.

As part of the Territorial Association's annual meeting, the HMSA is planning to meet with representatives from the outside islands on Thursday afternoon, May 4th, to discuss a territorial-wide plan.

Memorandum from Sam. R. Wallis, President, Kauai County Medical Society to Dr. Douglas B. Bell, President, Territorial Association:

This is to inform you that Messrs. Reginald Carter and Neal Iversen met with the Kauai County Medical Society on Friday, February 18th, and again on Monday, February 21st. It was decided at these meetings that:

- (1) Kauai is ready and in need of some type of medical and hospital insurance plan.
- (2) The HMSA plan seems to be the most logical plan to adopt for Kauai at the present time.
- (3) The Kauai County Medical Society unanimously instructed Mr. Carter to report to his Board of Directors that we are ready to consider the HMSA plan for Kauai after the working detail had been perfected.
- (4) Kauai County Medical Society have agreed to the fee schedule adopted by the Honolulu County Medical Society and the one which is being employed by the HMSA at the present time.
- (5) We would like, if it is possible, to have the plan on Kauai be a part of the HMSA, if such a procedure is possible with federal tax regulations.
- (6) Once the general outline of the plan has been submitted by the HMSA and adopted by the Kauai County Medical Society, we would be ready to start the plan in operation.

Letter from Dr. W. B. Patterson, President, Maui County Medical Society to the Secretary of the Hawaii Territorial Medical Association:

At our annual meeting held on March 12, 1944 there was a general discussion of medical service plans. Every member had received a copy of the discussion of the Hawaii County Medical Society some weeks before.

Earlier in the year we had discussed medical service plans for individual plantations and had decided that there would not be enough members interested on any one individual plantation to make a plan workable. However, on Maui there are other groups of middle income people who might be interested in medical service plans. These would include school teachers, county employees, merchants and others. Due to the threat of government medicine, the Maui County Medical Society feels that it should offer some type of medical insurance to anyone who wishes to have such. Maui is so small we felt that some plan might be worked out with the HMSA so that they might insure all on Maui as one group. Then the plantation skilled employees could also be insured if the individual desired. . . . The doctors are all in favor of medical insurance and would cooperate with a plan.

At our annual meeting I was instructed to write you to the effect that the Maui County Medical Society would cooperate 100 per cent with a medical service plan sponsored by the Territorial Medical Association and that we are inviting you to send a representative of the Territorial Medical Association or of the HMSA to Maui to make a survey and work out a medical service plan for Maui . . .

Hawaii County Medical Society presents:

Discussion of Medical and Hospital Service Prepayment Plans

In discussing this problem your committee felt that the points it wishes to stress might be best brought out by a series of questions and answers as follows:

Q. In general what do such plans embody?

A. They embody the payment of a monthly sum, usually on a sliding scale according to income, for which is received medical and hospital care, in some plans complete, in other plans limited.

Q. Are such plans in operation here, in the Territory, and on the Mainland?

A. There are limited plans in operation on this Island, elsewhere in the Territory and on the Mainland. There are plans, already far-advanced, for pushing through Congress the Wagner-Murray-Dingell program for socialized medicine which proposes to give complete medical and hospital care to everyone by taxing employers 6 per cent, employees 6 per cent and the self-employed 7 per cent up to \$3,000 per worker in any calendar year.

Q. In general what is being done about the adoption of prepayment plans and the plan before Congress?

A. The medical journals are filled with editorials and articles about plans and almost all are universally against the plan in Congress. The literature on Medical Economics is filled with articles both pro and con. The lay press is also editorializing on the subject, principally it seems, at the behest of propagandists for the Wagner-Murray-Dingell program. It would seem that so far, organized medicine has fallen down in meeting this propaganda and has insufficiently and improperly presented the dangers of the proposed program to the layman.

Q. Has organized medicine supported prepayment plans and what does it require of these plans in order for them to meet ethical and acceptable standards? What is your committee's opinion?

A. According to the principles of medical ethics of the American Medical Association, "A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration." Certainly, a plan which offers better medical care to the community must be looked upon with favor and must have the whole-hearted support of the medical profession. Whether a given plan does this or not is, to a large extent, a matter of personal opinion. Obviously, the point of view of the layman and the physician will clash regarding some phases of such a plan. There are, however, certain principles which common sense alone will dictate. These concern matters which the medical profession through experience has found to be necessary to give adequate and proper medical care. These may be enumerated as follows:

(1) Free choice of a physician who is licensed to practice by the Territorial Board of Medical Examiners.

(2) Free choice of a hospital (provided physician is permitted to practice in such hospital).

(3) A minimal number of conditions for which insurance is not applicable, i.e., a minimal number of exclusions.

(4) A fair fee schedule. There is no reason to make a fee schedule which will penalize a doctor's income. He should be permitted to charge what he feels is a fair fee. If the insurance plan fee schedule is too low, the patient would have to make up the difference. If excessive, this will produce a disgruntled patient and organization member.

(5) Hospital service as differentiated from medical service. Plans that are being organized do not take cognizance of the difference between these two services. Hospital service, as defined by the American Medical Association, "is limited to bed, board, operating room services, medicine, surgical dressings and general nursing care." Medical service is that service which is rendered under the immediate supervision of a physician. This includes not only the ordinary patient-doctor relationship but likewise the service rendered by the laboratory, the X-Ray department, the anesthetist and any other service in charge of a physician. Insurance plans now generally include the services rendered by the pathologist, radiologist and anesthetist under hospital service. The medical profession has a definite standing in the community and to include under hospital services those which are rendered by a physician will tend to lower this standing. The organizers of insurance plans are as a rule lay individuals and the proffering of professional services is not one of their functions. The practice of laboratory medicine, radiology and anesthesiology is as much the practice of medicine as surgery, obstetrics, etc. This is a concept which is not quite clear to organizers of insurance plans.

From the insurance planner's point of view there are certain abuses which may arise because of the inclusion of these medical services. There may be a marked increase in the number of tests and examinations requested resulting in increase in the costs of the department. And secondly, patients may be admitted to the hospital solely to have these tests performed. That, of course, results in a loss to the organization.

(6) No third party, bureau or insurance company is to profit financially from any contract utilizing the services of a physician, nor should a third party be interjected in the patient-physician relationship. If medical service is to be insured, then the financial transaction should be so arranged that the patient is billed by the doctor and the patient pays the doctor. *The patient must be aware of his responsibility to the doctor.*

(7) In order to prevent deterioration of medical service which may result when certain types of patients attempt to take advantage of medical service allowed them, a part of all cost of medical service should be borne by the patient. This will prevent numerous needless calls, yet will not be sufficiently expensive to increase the cost of medical care perceptibly.

(8) These plans should be subject to acceptance by the state or county medical societies to prevent ignorance on the part of the organizers from subjecting both patients and physicians to unfair practices.

Q. Is there a need for such plans in this community today?

A. (1) There are in operation already several company plans which provide these services for employees only. There is one plan in operation which provides these services to the entire families of subscribing employees. These facts would argue both for and against the need of a new and similar plan. The fact that the plans in operation have been started means that at least some people in the various companies have felt a need for them. The fact that they are already in operation on a widely varying basis will cause these companies to be loath to drop their plans for something new.

(2) The sugar companies furnish practically complete medical and hospital care for their employees earning \$100 per month or less. Employees earning salaries of over \$100 on the plantations do not number very many. The consensus of opinion seems to be that those earning from \$100 to \$150 per month do need some help in meeting their medical and hospital bills. Generally there have been increased incomes along with increased costs of living and the need for such plans seems less acute today than before the war started. However, what will happen after the war must be anticipated and planned for.

Q. Is there a *demand* for such plans in this community?

- A. (1) The consensus of opinion seems to be that there has been little demand for such plans from the people to be covered by the plans.
- (2) There *are* demands for such plans from several widely different sources.
- Advocates of state or socialized medicine. Most of these are laymen who are advocating socialized medicine in order to advance the cause of complete state socialism. Others sincerely believe that the government can do a better job in distributing medical care than the individual has done.
 - Another group demands such plans because the plans have worked elsewhere and they think they are good for any community. In this group are some in responsible positions who seem to feel that they must seek favor with the higher-ups by changing the status quo, whatever it is.
 - A third group which suggests a demand for a plan for this community feels that the adoption of a plan such as the HMSA offers is the only way to forestall the establishment of socialized medicine. It is this group that seems to have studied the matter most thoroughly, is best acquainted with all plans in operation, is best informed upon national medical affairs and has the best interests of the physician and patient in mind.

Q. Has any group on this island studied the plans in operation on Oahu and made any recommendations?

- A. Yes. The Association of Hawaii County Plantation Physicians has discussed the plans and made the following recommendations:
- If a plan is to be tried, membership should not be compulsory. An individual or an entire plantation need not join unless he or it so desires. All proposed plans should be presented to those to be insured for their suggestions, comments and actions.
 - All plans to be tried should receive the approval of the Territorial Medical Association.
 - All plans to be tried:
 - Should allow free choice of physician.
 - Should allow a free choice of hospital. The members felt that this need not open all plantation hospitals to outside physicians. It was the consensus that a person choosing a particular physician should be satisfied with the hospital or hospitals which that physician is now using.
 - Should embody an acceptable fee schedule.
 - No third party should come between the patient and the physician and make a profit from the plan.
 - The consensus was that a plan which is to benefit the plantations and its employees should have no restrictions. It should offer complete medical care for the employee every day in the year and should cover any illness or condition whether it was present before the employee joined the plan or not.

Q. In brief are the plans that have been tried on Oahu acceptable and what are the strongest and the weakest points about the acceptable plans?

- A. (1) The Aiea plan is not acceptable as it fails to meet the ethical standards of organized medicine, principally because it allows no choice of physician.
- (2) The Kahuku plan allows free choice of physician and hospital. It does not limit office calls; it requires the patient to pay 25 per cent of all expenses thus avoiding unnecessary services. (This is considered by some to be a good point, by others to be a bad point.) This plan has an overhead one-third that of the HMSA plan. There are many exclusions in this plan and there are time limits before certain services begin but these exclusions and time limits are not as severe as in the HMSA plan. There are also limits to the total services a member and his family may receive in any one year. The plan has worked well for about three years. It embodies an acceptable fee schedule.

- (3) The HMSA plan allows free choice of physician and hospital; it limits the number of office calls per year; it does not require the subscriber to pay a part of his expenses; there are limits to the total services a member and his family may receive in a year; there are many exclusions and there are time limits on certain services and these exclusions and time limits are more severe than in the Kahuku plan. The fee schedule is a fair one. The plan has worked well for five or more years and is financially sound showing a considerable surplus. Its overhead is 18 per cent which seems high.

(4) In brief the case for both the Kahuku plan and the HMSA plan may be summed up by several points made by Dr. Pinkerton in a report in the September-October 1943 issue of the Journal just received:

- Medical practice under the control of the physician.
- No third party interposed between doctor and patient.
- Absolute freedom to choose a legally qualified physician.
- Confidential relationship between doctor and patient.
- Medical services not connected with any cash benefits.

(5) The case against both these plans seems to be about as follows:

- They have exclusions—illnesses, existing prior to joining, and many illnesses developing after joining are not covered.
- They have waiting periods for certain services.
- They have limits on total services rendered per year.
- Apparently these plans have not gone as far in separating hospital care from medical care as is considered satisfactory by the AMA.
- We realize that the first three points above are considered safeguards of the plans and are such from a financial viewpoint. However, as mentioned above, the plantation physicians on this island have gone on record as follows: "A plan which is to benefit the plantations and their employees should have no restrictions. It should offer complete medical care every day in the year and should cover any illness or condition whether present before the employee joined the plan or not." Also the Wagner-Murray-Dingell program is offering complete medical and hospital care. If we are to offer a plan which we hope will defeat this program, will it be accepted if it has so many exclusions and limitations as the two Oahu plans?

Q. What policy shall we adopt and what recommendations should we make?

A. Your committee recommends the following:

- It is the consensus of opinion of this society that we should support the stand taken by those medical leaders who feel that we should offer an acceptable medical plan if we are to forestall the establishment of socialized medicine such as is offered by the Wagner-Murray-Dingell bill.
- We feel that the basis for an acceptable plan is already laid in the HMSA plan but we recommend that the Territorial Medical Association try to improve on these plans by first making certain that hospitals are not being paid for physicians' services (such as radiologists and pathologists) and secondly, that exclusions, waiting periods and limitations on the total services per year be eliminated as much as possible and thirdly, we would like to see the part-payment principle of the Kahuku plan incorporated. In order to see how sound economically these modifications would be, we suggest that the HMSA survey its members at once and determine what services the members have actually had to pay for outside the plan in a given period, and what conditions have gone unattended because of lack of coverage by the plan.
- That to ensure universal acceptance, there should be one and only one plan for the territory and that plan should be the plan of the Territorial Medical Association.

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Walter S. Johns, M. D.
Calgary Associate Clinic, Calgary, Alta.
Intravenous Anaesthesia
Canad. M. A. J., 48:222, Mar., 1943.

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CLINICAL NOTES

INTENSIVE THERAPY OF INFECTIOUS SYPHILIS

On my recent trip to the mainland, considerable time was spent visiting dermatologic and syphilis clinics throughout the country, giving particular attention to the use of various modifications of the intensive therapy of syphilis. The ideas and suggestions of this new type of therapy so gathered, I thought, would help clear up the recent muddle regarding anti-luetic treatment. There are so many new types of therapy being used at the present time that it is almost impossible to evaluate completely the data presented by the various syphilologists. In my visits to the various clinics, I tried to maintain an unbiased view as to the methods used by each individual clinic.

It was Ehrlich's *therapia magna sterilisans*, based on the idea that one injection of salvarsan was sufficient for the cure of syphilis, which stimulated research by many syphilologists to the achievement of the perfect method of therapy. Ehrlich's magic bullet was not of sufficient potency to prevent crippling of the cardiovascular and central nervous system, infectious relapse, congenital syphilis, and other stigmata of late syphilis. It occurred to Pollitzer, an American dermatologist, to use three daily injections of an arsenical, followed by a course of mercury, and then rest. This type of therapy did not fare too well, having a high percentage of infectious relapse, due to the frequent rest periods. His method was very similar to the European method of syphilis therapy.

It has been demonstrated by the Cooperative Clinical Group in our country that not only the type of therapy, but also the amount of continuous therapy given over a long period of time, determine the effectiveness of a given regimen.

The standard outline of treatment for infectious syphilis as advocated by the Cooperative Clinical Group is the formula 60-40-0-3, which calls for continuous therapy for at least eighteen months to two years with no rest period, and three years of observation, totalling 60 injections of bismuth subsalicylate (heavy metal), and 40 of a trivalent arsenical. This is a long time for the average patient to be seen in a private office, clinic, or plantation practice, and there is a great tendency to lapse from treatment in three or six months for several reasons—dread of treatment, the time element, the feeling of well being, and the lack of proper office follow-up of cases.

For these reasons and because of the public health factor, syphilologists have recently been stimulated to devise newer methods of intensive therapy, such as the five-day, ten-day, six- to twelve-week multiple-

syringe method, and finally the six-month army type of therapy now in use. It is important to remember that the patient under intensive therapy is carefully followed and even hospitalized, and is not subject to lapse from treatment. The knowledge that the treatment schedule will be finished in ten days or eight weeks is more encouraging than the usual eighteen-month routine.

In New York City I visited Bellevue Hospital where they are using the various methods of intensive therapy, such as the five-day method, multiple syringe, and combined arsenical and fever therapy. They have also finished a considerable number of the six- to eight-week type of therapy as advocated by Eagle and Hogan. This was a very large syphilis clinic which received about 100 new cases of early infectious syphilis a month. The patients were carefully checked and given complete examinations before and after completing treatment. It is probably one of the best syphilis clinics I visited in the east.

Thomas and Wexler at Bellevue have treated well over a thousand cases with the various types of treatment. They started with multiple syringe method, giving at first .060 grams of mapharsen twice daily for ten days (the same dose, 1.200 grams, used by the Mount Sinai group). Later they tried 0.100 grams twice daily, which was quite satisfactory until the one hundred and eleventh patient developed a fatal encephalitis. Since then they have been able to keep the total dose in proportion under 0.800 grams, in a period of ten days. They are now using a system of ten daily injections of about 0.060 grams each, with four fevers induced by typhoid vaccine. The fevers are given on the second, fourth, sixth and eighth days. The exact dose depends upon the patient's weight. This type of treatment is less toxic and less dangerous than the intravenous continuous-drip method. Their final results as to infectious relapse, cardiovascular central nervous system changes, and serologic reversals are as good as with the conventional C.C.G. method.

The Eight- Week Schedule

Astrachan of the New York Skin and Cancer group is quite impressed with the Eagle-Hogan technique as used at Johns Hopkins. In the Eagle-Hogan routine, the patients are given a weekly intramuscular injection of bismuth subsalicylate, 0.2 grams, and tri-weekly intravenous injections of proportionate doses of mapharsen for six, eight, ten or twelve weeks. In October 1943, about 2,500 patients had been treated by this method at various cooperative clinics through-

out the country. The final result has been quite satisfactory and the leading syphilologists throughout the country believe it is the treatment of choice. It is too soon to safely evaluate its outcome, but at present it seems to have excellent possibilities. At least it is one of the safest of the intensive treatment routines. The final results equal, or are even better than, some of the final reports of the old conventional 60-40-0-3 routine. Leading syphilologists, such as O'Leary at Mayo, Cole at Western Reserve, Stokes at Pennsylvania and, of course, Moore at Johns Hopkins, are of the opinion that it is one of the most promising types of syphilis therapy.

I have been quite impressed with this type of treatment during the last two years in my practice of syphilology in Honolulu, having finished sixteen patients with early infectious syphilis, giving mapharsen .06 every other day for six weeks. The number of cases is small but the results so far are excellent, and give good promise of shortening the time interval of treatment.

Penicillin

Since Mahoney published his four cases of syphilis treated with penicillin, both the laity and the profession have become extremely penicillin-conscious. It was so dramatic as to make one shudder as to its possibilities. Penicillin has been released to the larger syphilis clinics throughout the country to experiment with on different types of syphilis to determine dosage and reactions, and to record any sequelae resulting from its use.

At Bellevue Hospital where I witnessed the first use of penicillin, on an early darkfield positive chancre, some of the patients were treated by the intramuscular or intravenous method. The penicillin crystals were dissolved in sterile saline or 5 per cent glucose and given intravenously by slow continuous drip. Usually a total dose of 250,000 units were given in 24 hours. Many of the cases in New York were given about 1,200,000 units over a six- or seven-day period. Darkfields done on many of the chancres showed a marked diminution in the number of treponema pallidum in the first three hours after treatment was started. There was noted a drop of treponemes in six hours—from 12 to 8 spirochetes per field; in eight hours a drop of around 6 to 4 treponemes and in twelve hours the darkfield was completely negative. If the serologic test was negative at the start of the treatment it usually remained so. Positive serologic tests usually became negative at about the same time as under treatment with trivalent arsenic.

Many of the chancres or the secondary lesions developed a marked Herxheimer reaction—of a rather severe explosive type. The lesions and the genitalia increased almost twice in size within eight to ten hours after starting penicillin therapy. This can be attributed to the rapid destruction of treponemes taking place in the luetic lesions. The lesions themselves

responded no better than under regular trivalent arsenic and subsided in the usual seven to ten days.

Many of the patients had a rise in temperature to 101 or 102 F. with chill which was attributed to the pyrogenic factor in the penicillin and not to any toxic reaction of the penicillin in the blood stream. With the manufacture of a more refined penicillin this reaction will be completely eliminated.

Barrett at the Stanford University Hospital Syphilis Clinic is quite impressed with penicillin, although he has seen one infectious relapse. This has not been reported in the literature, I believe, up to the present date.

It already is established that penicillin must be given in substantial doses, otherwise one can expect failure. It is too early to evaluate this new type of therapy since there is a possibility of infectious relapse and damage to the heart and central nervous system in following years. At the present time it has excellent possibilities and is the drug of choice without any danger to the patient. From what I have observed it would seem that 2,000,000 to 3,000,000 units must be given for at least ten to fourteen days to be safe. A course of heavy metal (bismuth subsalicylate) or even trivalent arsenical, used as an adjuvant to penicillin, may be the final answer.

HAROLD M. JOHNSON, M.D.

TRANSMISSION OF GONORRHEA THROUGH BUCCAL COITUS

Many contacts of gonococcal infections have been examined during the past few months by the Venereal Disease Division, Board of Health. While most contacts have been of the usual type of sexual exposure, a number of men have attributed their infections to buccal coitus. As a result of the examination of contacts of these patients, a number of cases of presumed buccal gonorrhoea have been encountered. It has been recognized for many years that gonococci may affect the mucous membrane of the oral cavity and the nasopharynx. Older text books¹ make mention of such infections but in most cases the diagnoses have not been substantiated by cultural methods.

In discussing modes of infection, Pelouze² has stated that "the contact need not be of a necessity per vaginam, it may be rectal or buccal," and "patients occasionally are encountered who firmly insist that they have not been with a woman for months. Almost invariably these patients have acquired their infections from either buccal or rectal coitus."

Of Honolulu's approximately 250 known professional prostitutes, it is estimated that a minimum of 50 engage in buccal coitus as part of their sexual activities. Some of these prostitutes purvey no other type of sexual service to their customers.

There is a common belief among prostitutes and many of their patrons that gonorrhea cannot be acquired through buccal coitus. Unfortunately for some of the patrons of the brothels this popular belief is not true. During the past six months, three prostitutes investigated as presumed sources of gonorrheal urethritis in males were found to harbor *N. gonorrhoeae* in their buccal or pharyngeal mucosa. In each case, typical gram negative diplococci were found, cultures of which produced oxidase positive colonies. In order to biochemically substantiate the classification of these oxidase positive colonies of gram negative diplococci as *N. gonorrhoeae*, transplants were made to the various sugars and in every instance fermented glucose, but did not ferment lactose, sucrose, maltose, levulose or mannite.

Fermentation of Carbohydrates by Neisseria

MICROORGANISM	CARBOHYDRATE					
	Glucose	Lactose	Sucrose	Maltose	Levulose	Mannite
<i>N. catarrhalis</i>	—	—	—	—	—	—
<i>N. cinereus</i>	—	—	—	—	—	—
<i>N. discoides</i>	—	—	—	—	—	—
<i>N. flava</i>	+	—	—	+	+	—
<i>N. flavescens</i>	—	—	—	—	—	—
<i>N. gibbonsi</i>	+	+	+	+	+	—
<i>N. gonorrhoeae</i>	+	—	—	—	—	—
<i>N. intracellularis</i>	+	—	—	+	—	—
<i>N. orbiculata</i>	+	+	+	—	—	—
<i>N. perflava</i>	+	—	+	+	+	—
<i>N. sicca</i>	+	—	+	+	+	—
<i>N. subflava</i>	+	—	—	+	—	—
<i>N. venezuelensis</i>	+	—	+	+	+	±

+ = Fermentation
 — = No change
 ± = Variable

As all three of these patients were treated by private physicians the details of treatment are not known, but from health department records it appears that they all responded promptly to treatment.

From knowledge of the activities of prostitutes here and elsewhere, it seems that males suffering from what appears to be gonorrheal urethritis should be questioned not only as to the identity of their contacts but also as to the mode of exposure—whether it be vaginal, rectal, or buccal.

A few years ago, it was taught that a smear stained by methylene blue was not sufficient to identify the gonococcus, and that Gram's stain must be used. With the development of simple cultural methods for growing and identifying the gonococcus, one is no longer able to call all infections produced by gram negative intracellular diplococci "gonorrhea," but must identify the organism by cultural methods. This fact has been pointed out by Carpenter⁴ and two recent experiences have made us more conscious of the problem.

A male with urethritis which had been diagnosed as gonorrhea by a Gram stained smear was reinvestigated when it was learned that his only exposure had been via the buccal route. Cultural examination revealed an oxidase positive gram negative organism that did not ferment glucose but did ferment two other polysaccharides. Unfortunately, due to the patient's unavailability, further efforts to identify the particular organism were not made.

A young boy was reported as having a urethral infection the exudate from which revealed gram negative intracellular diplococci. This patient's only contacts were per rectum with other boys of his approximate age. Cultures revealed gram negative diplococci, oxidase positive which proved not to be *N. gonorrhoeae* by further cultural reactions.

It is well known that the meningococcus (*N. intracellularis*) is a frequent inhabitant of the throat. In the contact examination of patients suffering from meningococcal urethritis, such as reported by Carpenter³, it is recommended that patients be questioned as to the type of exposure and their contacts examined in detail to determine the type of *Neisseria* present.

Summary and Conclusions

1. Three cases of presumed buccal gonorrhea were discovered as a result of contact examination.
2. The possibility of the transmission of gonococcal infections through buccal coitus is presented.
3. Interrogation of contacts should include questions as to the type of sexual contact—vaginal, buccal, or rectal.
4. If questioning reveals a history of vaginal, buccal or rectal coitus, contacts should be examined at the appropriate site and bacteriological methods completed.

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SAMUEL D. ALLISON, M.D.,* AND
 BERNARD WITLIN, Sc.D.**

DERMATITIS FROM SHORTS

On January 4, 1944, the Board of Health, through its Industrial Hygiene Division, began a cooperative study with members of the Medical Society to deter-

* Venereal Disease Control Officer, Board of Health, Territory of Hawaii
 ** Bacteriologist States Relations Division United States Public Health Service assigned to the Board of Health, Territory of Hawaii

mine the cause of several dozen cases of severe dermatitis resulting apparently from the wearing of men's shorts.

As each case was reported, a history was taken as to the type of garment worn and the retailer from whom it was purchased, and information gathered as to the name of the local distributor or manufacturer's agent, and the name of the manufacturer. From the patient information was solicited as to the duration of actual contact with the garment, the extent of exertion required in the performance of his regular duties, and similar data.

It turned out that moderately active and active workers were principally involved in this outbreak. Perspiration undoubtedly played an important part in transferring the compounds contained in the finish of the cloth of the garment to the skin. The period of contact before noticeable effect was observed was short, as low as a few hours. Preliminary tests were made of the shorts involved in the first case, and where the garments in succeeding cases showed no marked similarity, a new pair was purchased and examined.

These shorts were all of cotton, purchased in widely separated parts of the city and made by several different mainland concerns. The fact that in every case the condition followed the wearing of only unwashed shorts precluded, to a large extent, the possibility that the sensitizing agent was in the fabric itself, and the fact that both white and colored shorts were involved fairly well eliminated dye as the causative factor. This left for first consideration the so-called "finishes" which give a comparatively cheap material more "body," non-creasing, non-wrinkling and delustering properties, and thereby a better appearance.

Until 1936 finishes for garments usually consisted simply of starch and other inert materials such as sulfonated oils of known low sensitivity values. Modern finishes contain other ingredients—synthetic resins, wetting agents, and solvents such as xylene, glycerol and the like.

Tests conducted on the mainland have indicated that where only unwashed shorts are involved in causing dermatitis, the causative factor has most often

been found to result from the synthetic resins used in the finish. These have been known to embrace a wide field including the phenolformaldehyde and urea-formaldehyde resins, rosins, ester gum, the vinyl, styrene and glyptal resins and the like.

Shorts identical to those involved in the dermatitis cases were tested for formaldehyde, phenols, abietic acid, esters of carboxylic acid, pH, starch, ester gum, rosins, glycerol and the extent of settleable solids removed by a quick water rinse.

Negative results were obtained in all cases for phenol, abietic acid, esters of carboxylic acid, and in all cases but one for formaldehyde.

Starch was present in all cases, as was ester gum. The latter ranged from traces to appreciable amounts. Tests for both rosin and glycerol were also positive, which confirmed the test for ester gum. A sample garment given a brief rinse in cold water produced as much as 75 cubic centimeters of settleable solids, the supernatant liquid containing many particles in apparent colloidal suspension and presenting a "muddy" appearance.

Ester gum, causative factor in the above cases, has a high group sensitivity record. More than 5 per cent of 200 persons patch-tested by the U. S. Public Health Service reacted positively. This percentage has been reported as even higher where wetting agents are included in the finish, for these substances greatly facilitate passage through the intact skin.

Local manufacturers' agents, wholesalers and others have been notified as to our findings. They have been asked to assist in forestalling the development of additional cases by stipulating, when ordering new materials, that only items free of ester gum or other known dermatitis producers will be acceptable.

These local businessmen have been most co-operative and have, on the arrival of additional shipments of goods from the coast, provided representative samples for test. Where these were proven to contain ester gum, the garments were returned by them to the manufacturer. To date this has amounted to several thousand dozen pairs of shorts.

FREDERICK L. SCHRAMM*

* Chief of the Division of Industrial Hygiene, Board of Health, Territory of Hawaii.

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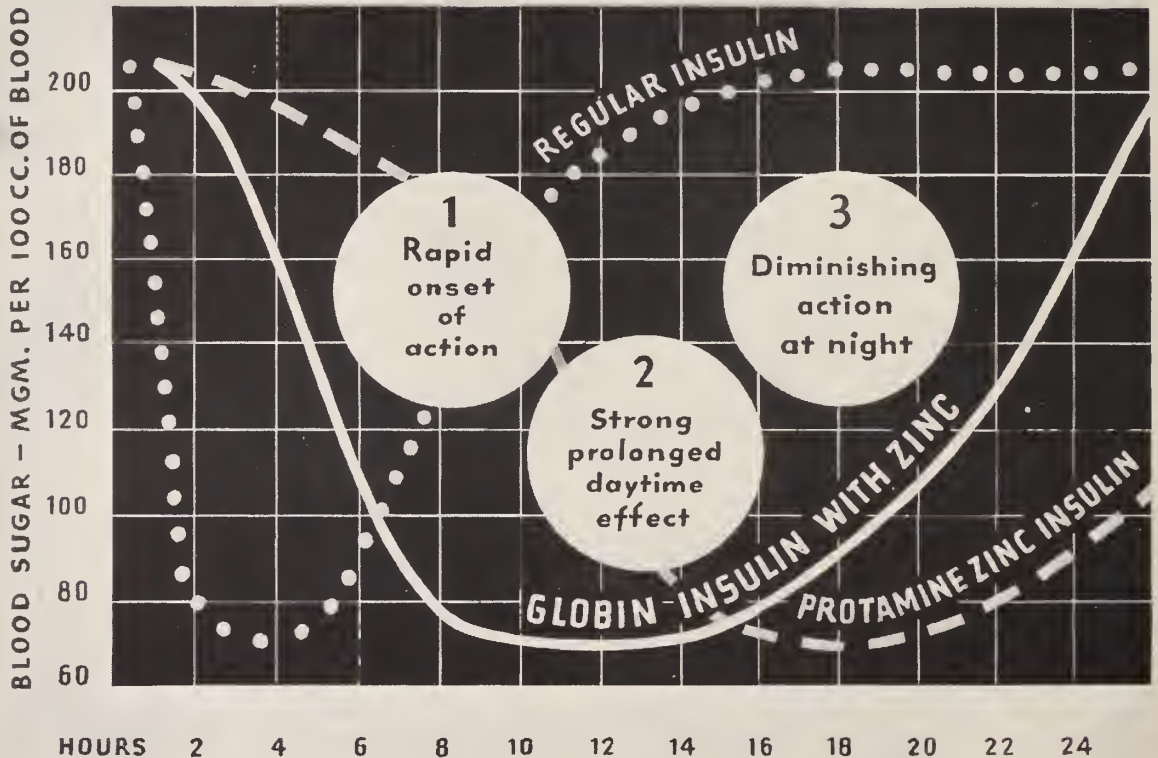
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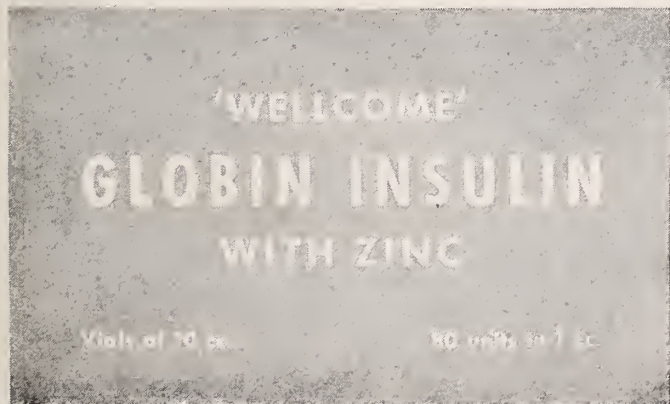
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CLINICO-PATHOLOGIC COMMENT

THE CLINICAL PATHOLOGIST

The understanding between the clinician and the pathologist is one of the primary "musts" before the former can make full and efficient use of the latter's services. Dr. Eric A. Fennel, along with many other pathologists, has preached this gospel for years. The doctor in the laboratory, like his brother the clinician, has many ways of saying the same thing. When a clinician consults a pathologist, he should first define the terms he uses. It is true that in most instances the vocabulary is sufficiently well standardized to make this unnecessary but in the instances where there is a divergence of opinion the conception of a given term must be made clear. For example, one pathologist may tell a surgeon that a mass in the breast is "chronic cystic mastitis", while another may call it "cystic hyperplasia". Yet both these diagnoses could be defined as a localized increase in the number of breast ducts, cyst formation and a concomitant round cell infiltration. The interpretation, like the terminology, (but unlike the definition) depends on the pathologist's and surgeon's personal opinion.

If the clinician is to expect the best possible opinion, he must give the pathologist a good history. It is true that many pathologists prefer to make a preliminary diagnosis, in the case of sections or smears, without a history. There is a definite advantage to this procedure in that the pathologist can approach the problem with an unprejudiced mind. The history may point in one direction while the true diagnosis may be a long way off. After the pathologist has made his preliminary diagnosis, the history will help to form his final conclusion.

The pathologist often forgets that he is a physician. He must go out into the wards and see the patient. He must talk to the patient himself and examine him. The pathologist often decries the fact that his fellow clinician thinks of him only as a super-technician. Many times it is his own fault. So long as the pathologist remains strictly in the laboratory he will not obtain—as he should—the full confidence of the clinician.

That there is a paucity of pathologists in this com-

munity is a well recognized fact. At the seminars of the Hawaii Society of Clinical Pathologists, the three civilian pathologists are lost among the Army and Navy uniforms. Aside from the general pathologists needed, there is a special type of pathologist missing—one who is trained in forensic medicine. As pointed out in a recent editorial of the HAWAII MEDICAL JOURNAL, the average pathologist is not adequately trained to perform this function, although he can do better than the average clinician. A set-up under the Territorial government rather than under the City & County would be best. A medical examiner's office should be established in Honolulu with complete facilities for laboratory aid in crime detection, including ballistics, serology, toxicology, histology, chemistry, photography and other pertinent departments. The outside islands could use their general pathologists for the preliminary work and material for analysis could be sent to Honolulu. All this should be seriously considered in our post-war planning.

The pathologist should also be a link between experimental and clinical medicine. In addition to conducting his own experimental work, the pathologist should be ready to make available the facilities of the laboratory to the clinician who has an experimental turn of mind. This of course is limited by the time which can be spared from routine laboratory work. However, as the demand on laboratory time increases, the hospital should, as its responsibility to the community, increase its laboratory facilities to permit additional experimental work. Where would one draw the line? If the investigative work is productive, as evidenced by accepted publications, there should be no limit. Most laboratories can pay for themselves even while maintaining low, unrestrictive laboratory fees. Anything more than a modest profit should be turned into a Research Fund.

It has often been said that the laboratory is the hub of medical progress in a hospital and in the community. Without the clinician, as the spokes, and the hospital as the rim, the wheel will not go round.

LOUIS HIRSCH, M.D.
Hilo, Hawaii

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NEUROPSYCHIATRIC COMMENT

TWENTIETH CENTURY PSYCHIATRY

The knowledge and practices in the field of psychiatry have advanced as much as, or more than, those in practically any other field of medicine in the last forty years. The fact that a section of the HAWAII MEDICAL JOURNAL is to be devoted to this field indicates some recognition of this growth. The time when the word "psychiatry" was synonymous with deteriorated, disturbed, long-time State hospital type of patients is well within the memory of many living physicians. In those days, many of the physicians in the work were young men getting a stake, or older men who had withdrawn from the responsibilities of active practice. Present day knowledge in psychiatry is such that, in order to be fully competent, a physician should have three years of organized training in a teaching center. The major emphasis is no longer upon individuals with advanced psychoses requiring years of hospital care. By detecting and treating cases earlier, it is possible to keep a large number of them in the community and it is possible, through intensive treatment in general and psychopathic hospitals, to return as many as 85 per cent of them to the community in a period of a few weeks.

Study of general hospital admissions has shown uncomplicated organic disturbances to be the difficulty in only one-third of all admissions. In another one-third of general hospital patients, the illness is partially due to organic disturbances and partially due to physiologic or emotional reaction to difficulties in the field of personality. In another one-third of general hospital patients, thorough examinations failed to reveal any organic disorder whatever and established the fact that these individuals were presenting physiologic disorder as a result of personal difficulties.

It is apparent, therefore, that most of the psychiatric problems in medical practice are seen by general physicians. There are not, and there probably will not be, enough psychiatrists to deal with all of these problems. The necessity for the general physician to have sufficient background as to enable him to recognize these cases and to manage a great many of them himself is, therefore, obvious.

Specialization Within Psychiatry

The time has come when even within psychiatry there are a number of special fields of interest and practice. The clinical psychiatrist deals with any and all types of psychiatric illness, in and out of hospitals. He is the general practitioner of psychiatry and frequently cannot be an expert in each of the specialties of psychiatry. The public health psychiatrist, or mental hygienist, deals primarily with education, case-finding, consultations, and efforts in the field of com-

munity organization aimed at providing the maximum opportunity for every person in the community to lead a happy, satisfactory and well-adjusted life. The child psychiatrist has special training and experience in the behavior and adjustment problems of children and usually does only this type of work. The psychoanalyst is a psychiatrist who has had intensive training, usually three years or more, in psychoanalytic theory, technique and practice. He should be a qualified, general psychiatrist before having this training, or his maximum value will be lessened. Psychoanalytic treatment is indicated in only carefully selected cases which comprise but a very small fraction of the total number of psychiatric patients. The forensic psychiatrist must have special knowledge of the law and its practices as it pertains to responsibility, competency and all the problems arising out of trauma. The research psychiatrist must be a general psychiatrist who has become an expert in many laboratory and investigational procedures. There are some who would add to this list the "military psychiatrist" but, in our opinion, there is nothing about military psychiatry which cannot be mastered and properly dealt with by competent general psychiatrists.

Not only is there a great deal of background and technical knowledge in this field now but, in addition, there are a number of specialized procedures and techniques. These include electro-encephalography, encephalography, pyretotherapy, hypnosis, various chemical techniques rendering individuals more accessible, insulin, metrazol and electric shock procedures, sleep treatment, association motor technique and interpretation, the Rohrschach experiment, free-association procedures, various methods of indirect examination and treatment of children, mental measurements and a variety of personality scales. These are merely some of the tools of psychiatry, most of which have been developed within the last generation and some of which we have acquired within the last few years.

Psychosomatic Medicine

There have been widespread and rapid advances in the field of psychosomatic medicine in the last ten years. This work should be of vital concern to every physician. It does not deal with mental illness in the old or conventional sense but rather with the physiologic and even, in some instances, the anatomic disturbances resulting from emotional disorder.

It is to be hoped that in the space devoted to Neurology and Psychiatry in the HAWAII MEDICAL JOURNAL, many of the general considerations and much of the background material of interest to every physician in these fields can be presented.

W.M. M. SHANAHAN, M.D.



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HOSPITAL NEEDS

PSYCHIATRIC UNIT, QUEEN'S HOSPITAL

One of the major developments in psychiatry in the last generation has been the increase in psychiatric facilities in the community as distinct from those in the state hospitals. This was first apparent in the organization of psychopathic hospitals connected with medical schools and devoted not only to the intensive treatment of acute illnesses but also to the training of specialists, the teaching of students and nurses, and to research. The next development was the establishment of a number of psychiatric departments in connection with general hospitals. Following this, the movement into the community was largely taken over by public health agencies and carried forward through travelling clinics, out-patient departments, child guidance clinics, case-finding programs, educational programs, consultation with social agencies and, eventually, some effort to direct community organizations so as to offer the best facilities for healthy living for all.

Since 1938 there has been a psychiatric unit, composed of 4 closed ward beds and 10 open ward beds, at Queen's Hospital in Honolulu, a reflection of the progress which has been made all over the country. In type of facility and in number of beds, the service at Queen's has been very inadequate since its inception. Many aspects of the service have gradually improved and, at the present time, we have a well trained and satisfactory staff of psychiatric nurses in this clinic. In October 1942 efforts to increase the bed facilities were somewhat encouraged through federal funds secured via the Office of Civilian Defense by the addition of a new 11-bed open ward unit, making a total of 21 beds on the open ward and 4 beds for disturbed patients.

The conditions in the islands have been such as to markedly increase the load of patients going through this clinic, as illustrated by the fact that in the last fiscal year there has been an increase of 27 per cent in hospital admissions to its service. In the month of December, 1943, there were 76 patients admitted to the unit. (After from one to three weeks in the hospital, 85 per cent of these individuals are returned to the community.)

The most acute need for new facilities in this field is for disturbed patients. The only beds in the Territory for disturbed patients, outside the Territorial Hospital, are the four in the Maluhia section of the Queen's Hospital. This section is architecturally in no way suited to the purpose for which it is being used. It is impossible to offer patients in this ward any rec-

reational activity, or even to get them into the sunlight, regardless of how long they may remain. There are usually six to ten disturbed patients in the community, and this is the only hospital to receive them. They are brought in at all hours of the day and night in such condition as to necessitate hospitalization at once. Frequently, it is necessary to put a number of these patients temporarily in beds on the open ward, under sedation. A number of such disturbed patients have had to be committed to the Territorial Hospital for no other reason than the lack of bed space. Many of these persons would undoubtedly have been returned to the community without commitment if facilities for keeping them had been available.

At the present time, The Queen's Hospital is exploring the possibilities of securing more adequate facilities. It is proposed that a new building of 50 beds be erected on the grounds of The Queen's Hospital to handle all the psychiatric patients in the hospital. This would include the most modern treatment and diagnostic equipment. The Queen's Hospital has already indicated its willingness to provide trained and competent personnel. In 1942 a residency in psychiatry was created at the hospital, and a very satisfactory working arrangement is offered. There is no present incumbent, and one is badly needed. In addition, trained psychiatric nurses are placed in charge of the patients at all times; the Territory employs two full-time occupational therapists to assist in the treatment of these patients. Also, the x-ray, laboratory and physiotherapy services, as well as the total consulting staff of The Queen's Hospital are always available and are freely used in examining and treating the patients received.

The proposed new unit is not intended to serve Oahu alone, but will receive cases from the entire Territory. One of the main tasks of the Bureau of Mental Hygiene of the Board of Health, when it has sufficient staff, would be to find cases all over the territory. Naturally there must be some place to take these patients and treat them, and the bureau is committed to treat them in The Queen's Hospital.

Patients in the psychiatric division of Queen's are admitted in the same manner as those coming to any other part of the hospital. About one out of 500 patients admitted comes on a commitment; it is not necessary for the patient or any of his relatives to sign anything whatsoever for an admission. A great many of the patients admitted are not psychotic but are suffering from psychoneurosis—reactive depressions, situational maladjustment and symptoms thereof. A

number of patients are examined for local authorities and agencies with no thought of commitment.

With adequate facilities and staff, it would be possible to provide the most modern type of intensive therapy for individuals with acute psychiatric illness and to return most of them to the community without the necessity of commitment to the Territorial Hospital.

WM. M. SHANAHAN, M.D.

TERRITORIAL HOSPITAL: PROPOSED NEW UNIT

The early history of care for the mentally ill presents a dark picture. Supervision of the insane began with commitments to jail and, of the witches who were burned at the stake, it is now reasonably certain that many of their peculiarities grew out of mental ailments.

Society's struggle for a higher degree of civilization and sensitivity developed the "insane asylum" for the care of its mentally ill but many of these asylums were no better than the jails to which the insane had been committed. The only marked advance was in segregation from criminals. The architectural features of the jail were dominant in these early asylums with major emphasis on restraint and confinement. The chief difference in construction lay in the fact that the cubicles in the cell blocks of one were padded; in the other they were not. The friends of the insane seldom hoped for their return to normal life. Those suffering from mental ailments entered under an armed guard, they left in the black hack. There was seldom any other manner of egress.

The development of treatment facilities has been greatly accelerated during the past few years. Although about one-third of those committed to a mental hospital still remain for the balance of their natural lives, two-thirds are discharged as cured or paroled as sufficiently improved to merit return to normal home and work conditions.

Overcrowded

Dr. E. A. Stephens and his staff have established an enviable record for the Territorial Hospital in the field of patient response to treatment. The Hospital compares favorably with other institutions in the country but it is seriously overcrowded.

An area of 70 square feet per bed is normally looked upon as a minimum requirement. In many instances, bed space at the Territorial Hospital has been reduced to 50 square feet per bed. There are now no beds in reserve for special cases or for any emergency that might arise. The Territorial Hospital was originally designed for 926 beds. Of these, the United States Army now occupies 276. This loss of bed space is partially offset by virtue of the fact that

the Hospital occupies four temporary frame buildings consisting of 50 beds each, bringing to 850 the total bed space now available to the Hospital. These temporary frame buildings were constructed by the U. S. Engineers. The total Territorial Hospital population in residence is 1,066 or 216 in excess of the normal bed space available.

On June 30, 1936, the total Territorial population was 393,277. At that time, the Territorial Hospital had an in-patient population of 816. The total Territorial population at the end of 1943 has been variously estimated as between 470,000 and 480,000 with an in-patient population at the Territorial Hospital of 1,066. There has, however, been no new permanent construction since 1936. All of these figures on the in-patient population of the Hospital and the overall population of the Territory are exclusive of Army and Navy personnel. Everyone in Hawaii is familiar with the tremendous influx of people who have come to the Territory for the fortification of these islands, the construction of airfields, housing projects, anti-aircraft bases, and the expansion of all military activity under the control of the United States Army. The mobilization of the United States Fleet in the Hawaiian Area has brought about a marked increase in the shore activity of the United States Navy. The way in which this influx in population has affected non-resident admissions to the Territorial Hospital will show in the following table:

NON-RESIDENT ADMISSIONS

First Half of 1940.....	5
Second Half of 1940.....	13
First Half of 1941.....	55

Even the preceding table does not give a complete picture of the increased load which is now being referred to the Territorial Hospital for treatment and care. In almost every state in the Union, one normally loses his status as a resident after one year's continued absence. The number of recent arrivals for whom treatment and care is provided at the Territorial Hospital is, therefore, in excess of the figures in the preceding table. After June 30, 1941, the number of non-residents, as shown by statistical reports, began to decline sharply but only because recent arrivals had attained residence status, with hospitalization a responsibility of the Territory.

Veteran Admissions

The Territorial Hospital must also assume another obligation, that of hospitalization for Veterans of World War No. II. The following table will show the total number of patients who were hospitalized for the Veterans Bureau during the past 10 years:

1934.....	25
1935.....	24
1936.....	26
1937.....	29
1938.....	27
1939.....	33
1940.....	34
1941.....	38
1942.....	36
1943.....	45

The Hospital is already receiving veterans of this war and will continue to do so indefinitely.

On October 30, 1943, Dr. C. W. Dodge, Manager of the Veterans Administration, Honolulu, went to the Territorial Hospital to discuss the future care of veterans of the present war. He had been asked by the National Veterans Administration to designate a hospital in the Territory to receive neuropsychiatric cases and wished to designate the Territorial Hospital for that purpose. The present contract of the Territorial Hospital with the Veterans Bureau calls for the hospitalization of 60 patients maximum. The number of veterans admitted as neuropsychiatric cases will, no doubt, greatly exceed 60 as a result of the present war. The Territorial Hospital has already received 12 former service men of the present war incapacitated by mental disorders and, in the light of past experience, the increase in admissions will be in direct proportion to the forces inducted from the Territory. On the basis of scientific statistical studies made, the Hospital must expect eventually to provide care and treatment for many of Hawaii's inductees.

Facilities Needed

If the Army moved out of the Territorial Hospital today, the Hospital would still be short proper accommodations for over 100 patients. This represents 10 per cent of the patient population at the Territorial Hospital and the number is growing. Crowding and lack of proper environment and treatment mean more patients will never recover who otherwise would.

Since the last additions were made at the Hospital new methodologies for diagnosis, treatment and research have been brought to light. These must be installed at the Territorial Hospital. The people of Hawaii will be satisfied with nothing less than the best in treatment and research. A hospital merely for the care of the mentally ill is obsolete.

Proposed New Treatment Unit

The new unit which is proposed is a complete self-contained hospital except for laundry facilities. Facilities for treatment and laboratory research are planned in accordance with the best practices known. Bed space is provided for 218 patients, 48 of which will be in private rooms which are planned in two sections of 24 rooms each—each section to be built around an open court. Beds for 170 patients will be in ward areas.

Diagnosis, treatment and research are the dominant factors in the proposed treatment unit for recoverable patients at the Hospital.

As in any other illness, early care in the treatment of mental disorders is imperative. There is little chance for recovery if an acute psychosis is allowed to continue untreated until the stage of chronicity is reached. The Army has become fully aware of the need for immediate treatment and is now doing everything possible to administer treatment in the battle lines to those suffering from shock, exhaustion, and

anxiety. Early treatment is no less essential for those in civilian life who show symptoms of some mental disorder. With the expansion of treatment facilities at the Territorial Hospital, many patients who now remain out of the Hospital because of inadequate facilities will receive early treatment and care.

Because of the urgency of the need, full and complete plans and specifications for a new treatment unit at the Territorial Hospital were ordered prepared on March 2, 1943. This authorization was made possible by virtue of the fact that the 1941 Legislature of Hawaii had, upon the request of the Director of Institutions with the approval of the Governor, made \$150,000.00 available for that purpose. The Legislature recognized fully the inadequacy of this amount in relation to the need and hoped, therefore, to secure a supplemental grant from the Public Works Administration. In fact, as early as January, 1940, the Director of Institutions was in contact with our Delegate to Congress, to determine the passage of legislation similar to the Lanham Act and similarly designed to provide funds for the development of additional hospital facilities under the P.W.A.

The detailed plans and specifications for the Territorial Hospital have now been brought to virtual completion. The estimated cost is \$550,000.00. Through the office of Mr. C. W. Schruth, District Engineer for the Federal Works Agency, Public Works Administration, the Director of Institutions has made application for a \$444,000.00 grant from Lanham Act Funds to supplement the Territorial fund of \$106,000.00, the unexpended balance of the allotment for developments at the Territorial Hospital. Approximately thirty thousand dollars has been or will be spent for plans and specifications and, in addition, it is expected that excavation work which is now nearing completion will be furnished without inclusion of any part thereof in the estimated total of \$550,000.00. All that now remains is the final approval of the Federal Works Agency, the allocation of funds, and the release of materials by the War Production Board. The Territory is ready to go. When Federal funds are made available and materials released, it is expected that only a minimum of time will elapse before construction gets under way.

Governor Ingram M. Stainback has already secured the endorsement of this project from the Department of Interior. The preliminary plans and specifications for the treatment unit at the Territorial Hospital together with the amended application for the grant (Docket No. 51-111) are in the hands of the District Engineer, Federal Works Agency, and he is at present engaged in gathering additional information pertaining to this project. The Territorial Director of the War Manpower Commission states that unless new demands on construction labor are made by the Army or Navy, it appears that the required labor will be available.

O. F. GODDARD

CHEMOTHERAPY MARCHES ON



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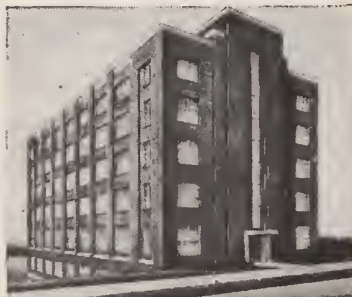
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ever did Chain, Florey² and their associates re-examine the prior work of Fleming, confirm his original observations and describe isolation of the active principle—*Penicillin*.

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REFERENCES: ¹FLEMING, A.: Brit. J. Exper. Path. 10: 226 (June) 1929.

²CHAIN, E.; FLOREY, H. W.; GARDNER, A. D.; JENNINGS, M. A.; ORR-EWING, J., and SANDERS, A. G.: Lancet 2: 226 (Aug. 24) 1940.

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COUNTY SOCIETY REPORTS

HAWAII COUNTY MEDICAL SOCIETY

The 223rd regular meeting of the Hawaii County Medical Society was called to order by the President, Dr. L. L. Sexton, at 4:10 p.m. at the Staff Room of the Hilo Memorial Hospital. Fifteen members and five guests were present.

Dr. C. B. Brown presented a paper on "Primary Carcinoma of the Liver." Dr. Hirsch discussed the pathological aspects.

Foodhandler Examinations. The President reported on the matter of examination of food-handlers. He referred to a copy of the new regulations sent to all physicians by the Board of Health, together with a copy of a letter from Dr. Wilbar stating that the Board of Health was making arrangements to have chest x-rays of all food-handlers. Dr. Bernstein reported that a tuberculosis survey of all food-handlers on the island is to be done in the near future, the project to be financed by the Board of Health; however, it will be permissible for these persons to go to their private physicians, provided that the authorized agent designated by the Board of Health (Dr. Leslie of Puumaile) will certify freedom from tuberculosis. Considerable discussion followed. It was pointed out by a number of physicians that: (1) the placing of culpability on the employer was unjust to the employer; (2) the new regulations were inadequate because of the lack of an initial and periodic examinations by a physician. In answer, Dr. Bernstein stated that the new laws were both adequate and effective in that: (1) the chief epidemiological interest of public health men insofar as food-handlers were concerned was in the control of gastro-intestinal diseases which occur sporadically and which would not be picked up in periodic examinations; (2) the danger of spreading tuberculosis and latent syphilis by food-handlers is a minimal one and public interest in these diseases are chiefly along survey lines. Some of the members then stressed the fact that the population group being dealt with would not report to physicians at the time of illness of a contagious disease such as the diarrheas (*Salmonella* infections) but would tend to withhold this information from the employer, private physician and health authorities. Dr. Bernstein explained that in the inspections of restaurants, markets, etc., sanitary inspectors would advise employers to have food-handlers report to physicians for illnesses, that education of both employers and employees would provide the chief means of controlling diseases most likely to be spread by food-handlers.

After a lengthy discussion, it was voted that a committee be appointed to study the new regulations, point out the undesirable features and draft specific recommendations for changes. Dr. Sexton appointed Dr. Patterson, Chairman, Dr. S. R. Brown and Dr. C. L. Phillips.

Dr. Hirsch, chairman of the Committee on Sex Education, reported. The committee had studied Dr. Larsen's booklet, "Facing Life," and believed it to be anatomically and physiologically correct and endorsed its use for sex education in the local high school. Concerning the society's stand on whether such a program should receive the approval of the society, the committee considered the program from the moral and religious aspects and believed that the society as a whole should not endorse such a program. However, it felt that the local high school can approach individual members of the society to help with the program. The Secretary was instructed to send a written report of the committee to Mr. Dostal, principal of Hilo High School.

Survey re Nurses. The Secretary presented the following summary of the survey re the need for graduate nurses on the island.

	GENERAL HOSPITAL	TBC HOSPITAL	TOTAL
Present bed capacity.....	458	175	633
Occupancy in per cent during past 6 months.....	54%	100%	67%
Minimum complement of nurses required.....	65	12	77
Present staff of graduate nurses.....	46	4	50
Present deficit.....	19	8	27

One hospital stated that it had already closed a portion of its hospital (12 beds); another that it was contemplating closing a portion of its hospital because of shortage of nurses; a third stated that a wing of the hospital for which there is a decided need cannot be opened.

Dr. Sexton stated that on his recent trip to Oahu he gathered that the situation on this island is better than it is on Oahu and attempts should be made to use hospital attendants for routine duties and free graduate nurses for the essential duties in a hospital. It was voted to send the summary to Dr. Arnold of the O.C.D., and that while the Society is fully aware of the needs throughout the Territory and the mainland, the Society would appreciate some help in the matter.

Mental Hygiene Society. A letter from the Terri-

torial Society for Mental Hygiene, requesting "energetic support and a certain amount of guidance" in the formation of an affiliated unit on this island was read. The letter stated that Dr. Douglas B. Bell, President of the Territorial Medical Association, favors the establishment of such a unit on Hawaii. Inasmuch as no correspondence concerning the matter had been received from the Territorial Medical Association it was the consensus that the matter should be left in the hands of our Councillor.

Medical Service Plans. Our Councillor, Dr. S. R. Brown, reported having received a recent report of a meeting of the Council of the Territorial Association at which several plans of prepaid insurance for medical care and hospitalization of plantation employees earning more than \$100 a month were discussed. Dr. Brown stated that he had received summaries of the salient features in each of three plans which have been in operation on Oahu for the past three years that the Council desired answers to certain questions brought forth in the letter. Considerable discussion took place. It was pointed out by Dr. Patterson that the matter should not be left in the hands of plantation physicians inasmuch as when the matter was first brought up in October 1941, this Society had gone on record as being "opposed to any . . . plan regardless of its nature unless it first received the sanction of the entire Territorial Medical Society and not any particular group such as plantation physicians or physicians in private practice."

Dr. C. B. Brown suggested that since the members other than plantation physicians had not received the plans and hence knew very little about them, a copy of all the material sent to the Councillor be mailed to each member of the Society for study, and that each be prepared for action to be taken at the coming meeting. This met with the approval of all members present. The Secretary was instructed to inform the Territorial Medical Association concerning the Society's action.

Date of Meetings. A discussion occurred regarding the date of the monthly meetings. It was generally felt that the meetings conflicted with the monthly staff meetings of the Hilo Memorial Hospital. It was voted that meetings be held on the first Thursday of each month, thus allowing any of the men residing in the country districts to stay over for the Friday morning clinico-pathologic conferences conducted by Dr. Hirsch at the Hilo Memorial Hospital.

Journal Subscription. A bill from the Territorial Medical Association of \$80 for the subscription to the Hawaii Medical Journal was presented. The Council had recently taken this action because "copyright and mailing regulations require that each member of the society pay separately for his journal subscription and that this cannot be included in the dues." It was pointed out by several members that in February 1942, the Council had passed a resolution that "each member shall pay of his annual dues of \$15.00.

\$2.00 as a year's subscription to the publication" and that in June 1942, the Council had raised the dues for each member from \$15 to \$20 to cover the cost of the Journal. The prevailing opinion was that the individual dues should be lowered by \$2.00 to take care of the subscription price of the Journal. It was voted to notify the Territorial Association that this Society objects to the extra assessment for the Journal at this time.

The 224th regular meeting of the Hawaii County Medical Society was called to order by the President, Dr. L. L. Sexton, at 4:15 p.m. at the Staff Room of the Hilo Memorial Hospital. Nineteen members and five guests were present.

The Secretary's report as mailed to each member was ordered placed on file without reading.

Lt. John Stewart, U. S. Navy, attached to the Marine Corps, talked on the medical aspects of the recent action at Tarawa. He outlined the physical set-up and emergency treatment used by combat field units. He discussed war wounds and their first-aid treatment and demonstrated supplies and instruments captured from the Japanese.

Food-handler Examinations. A report of the Committee on Food-handler Examinations was submitted by Dr. Patterson, Chairman. It was voted to submit the report to Drs. Bernstein and Wilbar.

Survey re Nurses. The Secretary read a reply to a letter concerning the shortage of graduate nurses on this island from Dr. Arnold, Medical Director of O.C.D., stating that this island could not expect help from any quarter regarding this problem, that some training program should be instituted for nurses' aides who, after training, could take over the routine duties of graduates, and that his organization would help in such a program. After lengthy discussion, it was voted that a copy of Dr. Arnold's letter be sent to the managing committees of all county hospitals.

Convalescent-Nursing Home. The secretary reported that most of the replies concerning establishment of a convalescent home in Honolulu for the Territory, were favorable, that he had transmitted this information in answer to a telephone message, to the Territorial Medical Association.

Medical Service Plans. The matter of plantation group medicine was then brought up for discussion. Dr. Larsen, President of the local Plantation Physicians' Association, stated that their group had already adopted the Aiea plan, that any plan which offered: (1) free choice of physician; (2) free choice of hospital; (3) an acceptable fee schedule; (4) guarantee of operation on a non-profit basis would be acceptable to this group, but that in general, that association was not highly in favor of any plan because no definite benefits would accrue to plantation employees.

Considerable discussion followed. It was generally felt that insufficient time had been given to the study

of the plans, that other economical aspects of the practice of medicine needed study. It was voted that a committee of four be appointed to study the economic aspects of the practice of medicine, to include plantation group plans, fee schedules and private practice, and to report back to the Society at its next meeting which would be devoted exclusively to this matter.

Library. Dr. Crawford, Chairman of the Library Committee, reported that its initial appropriation had been exhausted and requested an additional appropriation of \$300.00. The Treasurer pointed out that \$300.00 would exceed the annual income. Dr. Crawford stated that the probable annual budget in the future would be in the neighborhood of \$150.00, that additional funds were needed for completion of binding back copies of Journals. It was voted that the Society appropriate \$300 as requested.

Meetings. It was voted that future meetings be held on the first Thursday of the month at 7:00 p.m.

Meeting, February 3, 1944

The 225th regular meeting of the Hawaii County Medical Society was called to order by the President, Dr. L. L. Sexton, at 7:30 P. M. at the Staff Room of the Hilo Memorial Hospital. Twenty members were present.

The Secretary's report was read and approved.

No scientific session was held. The meeting was reserved for the discussion of the economic aspects of the practice of medicine, including group insurance plans, private practice and fee schedules. The committee appointed to study this problem and to present recommendations presented a comprehensive and thorough report, a copy of which was given to each member. Dr. Patterson, Chairman, presented the report in a seminar. Dr. Orenstein discussed the local economic situation; the committee "felt that medical fees as charged on this island were out of line with the fees charged on the other islands and on the mainland. It was felt that this was due in part to the lack of a minimum basic fee schedule . . . that any fee schedule in order to be successful must be maintained by at least a moral obligation on the part of the members of the Society." However, the committee did not care to make specific recommendations and suggested that the question be given careful consideration either by the Society as a whole or by a special committee appointed to study the problem.

Considerable discussion followed. Dr. Harold Sexton moved that a committee be appointed to study the matter of fee schedules and to draw up a suggested fee schedule for the consideration of the Society. Seconded by Dr. Wippermann. Unanimously passed.

Dr. Patterson and Dr. Hirsch then presented the section of the report dealing with Medical and Hospital Service Prepayment Plans in a seminar fashion. The report covered all the important phases of this

subject including the attitude of the American Medical Association, the Wagner-Murray-Dingell program, the prevailing plans operating in the Territory and the need and demand for plans in this community. It reviewed the various plans of group insurance for plantation employees and recommended the following:

(1) That the Society "should support the stand taken by those medical leaders who feel that we should offer an acceptable medical plan if we are to forestall the establishment of socialized medicine such as is offered by the Wagner-Murray-Dingell bill.

(2) That the Society should favor the H.M.S.A. plan but that the Territorial Medical Association should try to improve on these plans by first making certain that hospitals are not being paid for physician's services (such as radiologists and pathologists) and secondly, that exclusions, waiting periods and limitations on the total services per year be eliminated as much as possible and thirdly, that the part-payment principle of the Kahuku plan be incorporated. In order to see how sound economically these modifications would be, the H.M.S.A. should survey its members at once and determine what services the members have actually had to pay for outside the plan in a given period and what conditions have gone unattended because of lack of coverage by the plan.

(3) That to ensure universal acceptance, there should be one and only one plan for the Territory and that plan should be the plan of the Territorial Medical Association."

Considerable discussion followed. Dr. C. B. Brown moved, Dr. Crawford seconded, that the report be accepted in toto, that a copy of the second section be sent to the secretaries of the county societies and of the Territorial Medical Association. Passed unanimously.

The application of Dr. Hirsch for transfer of membership from the Honolulu County Society was passed unanimously.

Dr. Patterson moved that the Secretary write to Delegate Farrington for copies of the Wagner-Murray-Dingell bill for distribution to each member. Passed.

The President reported that Dr. Wilbar will be present at the April meeting to discuss the examination of food-handlers.

A letter from Dr. Bell, President of the Territorial Medical Association, requesting the society's opinion regarding the advisability of application for Lanham funds for the construction of a 50-bed psychiatric unit at Queen's Hospital for the use of all the islands was read. The President reported that he had contacted most of the members of the Society by phone and that these had been favorably inclined; he had transmitted that information to Dr. Bell.

Dr. Orenstein moved that the secretary contact Honolulu by phone regarding the possibility of having Dr. Lahey at a special dinner meeting. Seconded by Dr. Larsen. Carried.

The President announced that the annual dinner meeting will be held on the first Saturday after the first Thursday in March. Further details would be announced later.

Meeting adjourned at 9:00 P.M.

Meeting February 10, 1944

A special dinner meeting for Dr. Frank Lahey, Chief of Procurement and Assignment Service for Physicians of the War Manpower Commission, was given at 6:30 P. M. at the Naniloa Hotel. Thirty-five members and 21 guests were present.

Dr. Lahey discussed the general program of Procurement and Assignment. He stated that Procurement and Assignment which had taken the onus of furnishing physicians for the Armed Services had almost met the quota desired by them, that less than 7,000 of those physicians who had been marked available have not yet entered the services. However, the quota of specialists had not been met. Dr. Lahey pointed out that, whereas previously, the medical schools had been furnishing the armed services with 5,000 doctors a year, the accelerated program recently instituted would supply 7,300 annually. Henceforth, the services will take all graduates of medical schools except women and physical rejectees (about 1,000 a year) who will be retained for civilian practice. The Navy, however, will take women doctors.

In regard to the civilian population, Dr. Lahey stated that a ratio of one physician to 1,500 people was considered to be a safe level. He stressed that the disproportionate enlistment of physicians in the South and in rural communities had caused in some instances inadequate medical care, that Procurement and Assignment had relieved this situation to some extent by relocation of physicians (about 2,400 physicians have so far been relocated.)

The hospitals in particular were faring badly insofar as medical personnel are concerned. However, the recently inaugurated 9-9-9 program should alleviate the needs of hospitals.

In regard to nurses in the armed forces, Dr. Lahey stated that the Army now has 35,000 and will stop recruiting when they have obtained 40,000; the Navy now has 7,500 and will enlist 500 monthly until July, 1944.

Dr. Lahey then spent a few minutes on the discussion of socialized medicine from a purely unofficial personal position. He did not believe that there will be socialized medicine after the war because "the country will be too sensible to accept it," because it was too expensive. He believed that medicine should be allowed to evolve rather than to allow too abrupt

changes to occur, that certain changes were necessary. (1) correction of lower standards of medical practice in rural communities by diverting contributions from foundations and government subsidies to provide better facilities for the practice of medicine and post-graduate education for physicians in these communities; (2) prepaid insurance plans for medical care and hospitalization according to the principles promulgated by the American Medical Association.

In matters scientific, Dr. Lahey spoke briefly on several subjects: "Cancer of the Colon and Rectum," "Ulcerative Colitis" and "Regional Ileitis."

Basing his talk on a total of 1,400 cases of carcinoma of the colon and rectum operated on at the Lahey Clinic, Dr. Lahey gave optimistic results as follows: (1) a mortality rate of 10.5% (2.7% in the past 5 years); (2) 83% operability; (3) a 5-year non-recurrence rate of 50%. He stressed the close relationship between polyps and carcinoma, pointing out that most of the latter originated in polyps; he advised routine proctoscopic examinations and the removal of all polyps by fulguration at the office provided that the polyp is below the peritoneal reflection. Should biopsy of the polyp reveal malignancy, an abdomino-sacral resection should not be done unless the base of the polyp is grossly ulcerative.

He reiterated that the majority of carcinomas of the colon occur distal to the splenic flexure, that diagnosis is relatively simple from the history alone, manifesting itself in the triad of pain, alteration in bowel movement and the presence of blood in the stools. The x-ray appearance is characteristic, revealing an encircling lesion with the typical canalization effect. Once a diagnosis is made radical resection of the involved colon and abdomino-sacral glands is indicated along with a colostomy. The success in a colostomy, he stated, lies in three factors: (1) proper technic—using at least 2 inches of bowel above the skin to allow for future retraction; (2) assurance of a good blood supply; (3) a follow-up for a period of six months which is the time required for patients to learn constipation and proper care of the artificial anus.

Regarding ulcerative colitis, Dr. Lahey outlined the principles of management, as follows: (1) treat medically as long as possible; (2) do an ileostomy before the patient reaches the toxic stage, i.e., after he has had 2 acute attacks; (3) do a total colectomy after an ileostomy if he has 2 more acute attacks; (4) however, if the colitis is limited to the right side of the abdomen, do an ileostomy immediately; (5) NEVER put back an ileostomy.

As to the regional ileitis, Dr. Lahey presented the following points in its management: (1) don't operate in the acute stage, as this lesion never perforates; allow time for vaccination of the peritoneum to occur; (2) in operating, remove all involved portions and 1 foot in addition on the proximal side and all of the right colon up to the hepatic flexure and all of

the mesenteric glands. Explore the jejunum for similar lesions.

Dr. Lahey spent Friday morning at the clinical pathological conference conducted by Dr. Hirsch at the Hilo Memorial Hospital. This was well attended by the men in town and from the country districts and was a particularly instructive session evoking many questions and exclamations of awe at his amazing knowledge and tenacious memory. Unfortunately, your secretary did not take notes.

Meeting, March 4, 1944.

The 226th regular meeting was held at the Hilo Yacht Club. The occasion was the President's annual dinner. Thirty members and eleven guests were present.

Colonel Mogabgab, Commanding Officer of the Mountain View Hospital, invited the Society to a dinner meeting next month.

The application of Dr. L. Bernstein, Health Officer for Hawaii, was accepted.

A letter from the Secretary of the Territorial Medical Association in reply to a letter concerning charges for the HAWAII MEDICAL JOURNAL was read; Dr. Molyneux stated that it was his opinion that the charges should stand and that they have been paid by the other county societies. He suggested that the matter be taken up by our delegates at the annual meeting. The Society decided to lay the matter on the table.

The president stated that during the past three years two stenographers at Puumaile Hospital had assisted the Secretaries of the Society in typing and mimeographing, and suggested that the Society express appreciation for the services rendered. It was voted to send each a check for \$25.00 to show their appreciation. It was suggested that in future a sum not exceeding \$25.00 per year be allowed the Secretary for similar services.

The Treasurer's report was accepted and placed on file.

Dr. Crawford, Chairman of the Library Committee, gave a report including a financial statement and a budget. The society, he reported, subscribes to the following journals:

American Heart Journal
Annals of Surgery
Archives of Internal Medicine
Archives of Neurology and Psychiatry
American Journal of Obstetrics and Gynecology
American Journal of Diseases of Children
Radiology
Surgery
Journal of Bone and Joint Surgery
Archives of Dermatology and Syphilology.

Several members have contributed journals as follows:

Surgery, Gynecology and Obstetrics
Journal of Urology
Military Surgeon
Archives of Ophthalmology
Archives of Otolaryngology
Journal of the American Medical Association
Journal of Aviation Medicine.

The committee suggested that further donations, subscriptions and purchases be made and that at least \$300.00 per annum be appropriated. The report was accepted and placed on file.

Dr. Keay, Chairman of the Committee on Public Policy and Legislation presented an annual report. Among the bills of medical interest which were passed were: (1) S.B. No. 92 lowering the qualifications of the executive officer of the Board of Health despite protests from all medical societies; (2) S.B. No. 159 which allowed the Department of Public Welfare to pay not only the costs of hospitalization, etc., of indigent patients but also professional services, (3) H.B. No. 316 providing for a compulsory serological test for syphilis in the prenatal examination.

The annual election results were as follows:

President: DR. M. H. CHANG
Vice President: DR. M. L. CHANG
Secretary: DR. R. T. EKLUND
Treasurer: DR. W. F. LESLIE
Board of Censors: DR. I. LARSEN
Delegates: DRs. A. ORENSTEIN AND C. L. CARTER
Alternate Delegates: DRs. T. KEAY AND L. HIRSCH

The President stated that the Territorial Committee on Procurement and Assignment of Physicians had requested the Society to choose one member on this island to act in an advisory capacity. Dr. C. L. Carter was unanimously elected.

A copy of the minutes of a meeting of the Councillors of the Territorial Medical Association was read. The Council recommended a charge of \$1.00 for the typhoid booster shots but the Honolulu County Medical Society had agreed on a maximum charge of \$2.00. The Society went on record favoring a standard charge of \$1.00.

The President announced that the annual meeting of the Territorial Medical Association was to be held the first week of May, that Army and Navy doctors on Oahu and outlying islands were giving papers but that the program was not limited to them. A letter containing suggestions for round-table discussions was read, these included: (1) Board of Health programs, including foodhandlers' examination and maternity and pediatric care for military dependents; (2) the Chamber of Commerce survey of civilian hospital facilities; (3) medical service plans. The Society voted that the Territorial Association be notified of our interest in these matters.

Dr. Hirsch reported that plans for the operation of a peacetime blood bank insurance plan was progressing satisfactorily. He desired the Society to name a representative to serve on the advisory committee. Dr. C. B. Brown was elected unanimously.

Dr. Wilbar requested the Society to appoint a member to serve on the Plague Commission. Dr. S. R. Brown was elected unanimously.

Dr. Hirsch suggested that the Society write a letter to the editor of the HAWAII MEDICAL JOURNAL expressing complete agreement with a recent editorial to the present coroner system and expressing the need for a pathologist trained in medico-legal matters and forensic medicine. The Society voted to do so.

M. LEON CHANG, M.D., *Secretary*

HONOLULU COUNTY MEDICAL SOCIETY

Summary of membership meetings and Board of Governors' activities for January and February:

Scientific Program, January 7th, dinner meeting:

Symposium on Penicillin

Growing *Penicillium Notatum*—J. P. MARTIN,
pathologist, H.S.P.A. Experiment Station.

Use of Penicillin (case reports)
CAPT. C. E. WATTS, M.C., USNR

LT. COMDR. HARRY M. WEYRAUCH, M.C., USNR

LT. J. P. KFOGH, M.C., USNR

Discussion by Harold Johnson, M.D.

Scientific Program and Dinner for Dr. Frank H. Lahey, February 4th:

Dr. Lahey discussed "Management of Lesions of the Stomach and Duodenum," and gave high lights regarding the Procurement and Assignment program.

These meetings were perhaps the most successful for the year, with an attendance of at least 300 Army, Navy and civilian doctors.

Membership. The following were accepted into the Society in January:

M. Matsuyoshi

Samuel D. Allison

Library. Chairman of the Library Committee reported on its meeting of December 28 in which the matters of book purchases through Secretarial Service, discounts on purchases, and personnel were clarified. The Board approved the Library Committee's action "to leave things as they are since under the present arrangement the medical society is gaining far more than is involved in the issue."

Recommendation of the Library Committee to extend the services of the bookbinder to members of the society for a two months trial period, was accepted.

At the February 3 meeting a total of \$13,881 in cash, pledges and promises had been received into the Library Endowment Fund. Checks received from the

hospitals, under the plan with the City & County and Department of Public Welfare, were added to the Endowment Fund. It was agreed that disposition of these checks be made as they are received. It was agreed that no approach be made on the outside until the medical men had been thoroughly canvassed; that a follow-up letter be sent out.

Program. The Committee outlined its program for the rest of the year and presented its decision to go back to the pre-war schedule of evening meetings the first Friday each month. Reply was read from the Building Management that it must adhere to its policy of 50 cents service charge per person when food is served in the building regardless of who does the catering.

Plantation Health Plan. It was reported in January that approval had been given by the Health Committee of the HSPA to the HMSA to negotiate with Aiea and Kahuku plantations for a medical service plan. Mr. Carter reported in February that Aiea had accepted the HMSA plan for a six months trial period and asked permission to include less than five employees earning more than the maximum \$350. He presented a premium schedule for this group and wished to work out a fee schedule jointly with the Medical Society. The Board voted to admit to the plan the few individuals in question and referred to the Committee on Forms of Medical Practice the premium and fee schedules.

Hospital Bed Shortage. Dr. Shanahan appeared in behalf of Mr. Honeywell and presented the problem of bed shortage for disturbed patients and the proposal that Queen's make application under the Lanham Act for a 50-bed psychiatric unit to replace the present facilities at Queen's. It was voted that the Medical Society support such a request. The suggestion that provision be made for private doctors to attend classified types of cases that they are qualified to attend was not accepted but recommended to be considered later.

Hospital Survey. Memorandum received from the Chamber of Commerce Survey Committee, requesting certain data, was referred to the Secretary for reply.

Nurse Shortage. Dr. Winter asked for instructions for action at the meeting to be held January 12 where he was to represent the medical society. It was voted that the medical profession is against the freezing of nurses and he was instructed so to speak.

Complaints of Alleged Overcharging were made by Mr. Riley Allen. The President advised him that he had appointed a committee consisting of Dr. Withington, Chairman, Drs. Bowles, Molyneux and Phillips to consider such complaints if and when they are received in writing.

Territorial Chairman Procurement and Assignment Memorandum was read from the Territorial Medical Association notifying that Dr. Pinkerton was recommended to Washington as Chairman.

Pregnant Women in Industry. Report of Chamber of Commerce Committee re Board of Health M & I Bureau program was read.

R. L. HILL, M.D., *Recording Secretary*

MAUI COUNTY MEDICAL SOCIETY

Meeting January 26, 1944. The regular luncheon medical meeting was held at the Wailuku Hotel at 12 noon. President K. Izumi presided, ten members were present and the following guests: Drs. Richard K. C. Lee, Steele Stewart, Ed. Childs, Capt. Schwartz and Major Shupe.

A short business session was held. Dr. von Asch, Chairman of the Library Committee, reported that so many journals and books had accumulated that there was no room for them at the Maui County Free Library. Most of the journals are still in boxes as they were sent over from the Honolulu Library. Dr. McArthur was asked to see if he could find room in the Malulani Hospital for the library, or to have a room set aside for it in the new wing to be added.

There was discussion regarding the President's dinner. It was finally agreed that a party in February be arranged, the expenses to be divided equally among the members of the society, with the exception of the Molokai, Lanai and Hana doctors who cannot attend. All other doctors will be assessed whether they attend or not. Members may invite doctors and their wives as guests, the member paying for the guests.

Dr. Steele Stewart, orthopedic surgeon of Shriners' Hospital in Honolulu, was guest speaker. He had x-rayed the spines of 200 applicants for stevedore work and had found 49 per cent of them unemployable as stevedores. There was definite x-ray evidence of wear and tear or anomalies in the 49 per cent rejected. Every one rejected, when questioned, gave a history of back pain or previous trouble. He showed the x-ray plates of several of the cases and demonstrated lesions which the untrained eye does not see. He also described treatment in the cases he reviewed.

Special Meeting February 28, 1944. A special medical meeting was held on February 28th at 7:30 p.m. for Dr. Pauline Stitt of the Board of Health. Dr. Stitt gave a very interesting talk on infant feeding, discussing many points that are not found in textbooks. She stressed the importance of starting fresh, plain cod-liver oil before a month of age and continuing up to 12 years of age. She recommended that a "chaser" be given after the oil and that if parents gave it to the infant as "something good" they would relish instead of refuse to take it. The importance of always having the infant's head up when feeding was stressed. The baby should be held at about 45 degrees while feeding so that it can swallow properly. This should be done

for all feedings and especially for codliver oil. Many aspiration pneumonias are never recognized as such but are diagnosed as ordinary bronchial pneumonias due to infections.

Eight doctors and twelve nurses were present at the meeting.

The annual meeting of the Maui County Medical Society was held as a luncheon meeting at the Wailuku Hotel on March 12, 1944, at 12:30 p.m.

President K. Izumi presided with the following members present: Drs. Balfour, Osmer, McArthur, Dunn, Shimokawa, Kanda, K. Izumi, H. Izumi, Patterson, Sanders and Rothrock. Guest: Dr. Weaver, USNR.

After the luncheon the movie "Peptic Ulcer" was shown.

Election of Officers. Dr. Osmer, chairman of the Nominating Committee, presented nominations and the following were elected unanimously:

President: William B. Patterson
Vice President: John Sanders
Secretary-Treasurer: George von Asch.

Dr. Patterson, treasurer, made a report for the past year which was adopted.

Dr. McArthur reported that he had found space in the doctors' room of Malulani Hospital for the Maui County Medical Society library. It is hoped that doctors will contribute their journals after reading them to help build up a good library.

It was reported that Dr. Harry Arnold, Jr., will hold another series of skin clinics the weekend of April 1st and will be guest speaker at the society's meeting.

The outbreak of dysentery in central Maui was discussed. About 100 proven cases were reported on Maui this year, with many more unproven cases. Incidence is increasing and there are possibilities of an epidemic.

The Territorial Association reports that there will be an annual meeting in May; a scientific program with service doctors as speakers.

It was voted that the delegate be paid \$25 traveling expenses to the annual meeting. This was done to encourage the delegate to go as often in the past no one would go.

A fee of \$1.00 was decided upon for typhoid booster vaccinations on Maui.

The need for a medical service plan on Maui was discussed. Earlier in the year plantation medical plans had been considered, at which time it was decided

that there was no need for such on Maui since there would not be enough employees earning over \$100 monthly on any one plantation to make such a plan workable. However, it was considered, there are many middle income groups on Maui not on the plantations who might be interested, such as school teachers, county employees, merchants and skilled employees. The short distances between towns on Maui might make it possible to regard all on Maui as one group and a plan could be worked out to include anyone interested. Further, the threat of government medicine would make some medical service plan advisable for Maui. It was voted to ask the Territorial Medical Association to have the HMSA make a survey to determine the number of people interested in joining a medical service plan and work out a plan for Maui or extend their present plan to Maui.

Dr. Patterson announced the following committees:

*Committee on Public Health
and Legislation*

(Also Advisory to the Dept. of
Public Welfare)

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INDEX TO ADVERTISERS

Abbott Laboratories	173	Mead Johnson & Company.....	Back cover
American Factors, Ltd.....	186	Medical Books & Journals.....	200
Burroughs Wellcome & Co., Inc.....	180, 181	Merck & Co., Inc.....	206
Cutter Laboratories	175	Parke, Davis & Company.....	156
Don Baxter Co.	199	Petrogalar Laboratories, Inc.....	Third cover
Eli Lilly & Company.....	158	Philip Morris & Co., Ltd., Inc.....	168
Galen Company	204	Sandoz Chemical Works, Inc.....	166
Hawaii Medical Service Association.....	203	Squibb & Sons, E. R.....	205
Julius Schmid, Inc.....	184	Upjohn	155
Kodak Hawaii, Limited	179	Watkins Printery	198
Lederle Laboratories, Inc.....	190	Winthrop Chemical Co.	167
McArthur & Summers Pharmacy.....	182	Wyeth & Brother, Incorporated.....	Second cover





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NOTES AND NEWS

NEW MEMBERS

No reporting of new members has been made in this column since January 1943. We regret the omission and report here all members received during the fiscal year and to date:

Regular Members

Allison, Samuel D.—Oregon 1936
Bailey, Robert F.—Arkansas 1940
Eveleth, Barton M.—Rush 1939
Felix, John M.—So. Cal. 1942
Fernandez, L. R.—Washington 1941
Inamine, S.—Chicago 1938
Ito, William S.—Oregon 1939
Johnston, Robert G.—Harvard 1937
Kurashige, H. W.
Lee, Edmund L.—St. John's 1936
Majoska, Alvin V.—Penn. 1940
Matsuyoshi, M.—Louisville 1931
Sanders, John F.—Nebraska 1934
Shanahan, William M.—Wisconsin 1936
Slaten, Edward F.—McGill 1940
Takenaka, K.—Washington 1938
Walsh, William—Rush 1942

Transferred From Other Counties

Amlin, Kenneth M.
Benson, Homer R.
Honl, Leonard A.
Burlingame, D. L.

Service Members

Adler, Major L.—Indiana 1938
Cornell, Lt. Col. W. S.—Emory 1931
White, Capt. S.—Jefferson 1939
Tessmer, Carl—Pittsburgh 1935
Behm, Alton W.—Western Reserve 1935
Clark, John J.—Kansas 1941
Farinacci, Maurice G.—Illinois 1934
Fitzgibbons, James P.—Loyola 1936
McKee, Robert D.—Texas 1939
Dubowy, Jerome—New York 1941

The *Hawaii Dermatological Society* was founded on February 5th, 1944, with Drs. JAMES T. WAYSON, FRANK L. PUTMAN, HAROLD M. JOHNSON, HARRY L. ARNOLD, JR., and MAJOR EDWIN K. CHUNG-HOON as charter members. Associate members joining were MAJOR SOLOMON GREENBERG, MAJOR GERARD DE OREO, CAPTAIN HERBERT LAWRENCE, CAPTAIN DAVID J. MUSMAN, CAPTAIN L. H. ROSENTHAL and CAPTAIN ALBERT SHAPIRO, all of the Medical Corps, A.U.S. LT. COMDR. M. SILVERMAN, M.C., USNR, became an Associate at the second meeting of the society on April 8th. Meetings will be held the first Saturday of alternate months in the library of The Clinic. DR. WAYSON was elected President and DR. ARNOLD, Secretary.

The *Hawaii Society of Clinical Pathologists'* meeting of February 23rd at Tripler General Hospital (Farrington) was attended by ten pathologists from Army, Navy and civilian practice. DR. LOUIS HIRSCH came over from Hilo to be present. Eight cases were discussed and microscopic slides shown.

The *Hawaii Chapter of the American College of Surgeons*

for the second time entertained Army and Navy members of the College stationed in Hawaii. A program of scientific papers was presented in the afternoon. CAPTAIN LUCIUS W. JOHNSON, USN, discussed the Background of Facial and Plastic Surgery; LT. COL. LESLIE L. NUNN gave the Recent Advances in Plastic Surgery; CAPTAIN ERIC LARSEN, USNR, spoke on the Metamorphosis of a Civil Surgeon; LT. COL. ROBERT C. ROBERTSON discussed Internal Fixation in the Treatment of Fractures, and DR. JAMES A. MORGAN presented Congenital Facial Clefts and Their Surgical Correction.

Following the papers, the surgeons enjoyed cocktails, a buffet supper and dancing, arranged for by the wives of the local members.

DRS. SMITH and BUZAID recently organized a society of roentgenologists from among the medical officers in the Army and Navy and have had three meetings to date. Meetings are held once a month on the call of the Chairman, DR. JESSES W. SMITH, in the Mabel Smyth Building. DR. LOUIS BUZAID is Secretary of the group.

The editorial board of the *JOURNAL* was increased at the end of the year, adding DR. ENRIGHT, CAPT. PLEADWELL and the President of the Territorial Association, to assist DR. PHILLIPS, DR. ARNOLD and MRS. BOLLES.

DR. TAKEO FUJII has returned from Molokai and has joined his brother in practice at 1914 S. King St.

A postcard comes from India from DR. J. A. BURDEN saying, "Never again when I leave a place will I say I'll be back again after so long! My best aloha to every one."

DR. LUDWIG EMGE, senior surgeon of the USPHS who was asked to be assigned here as adviser in obstetrics to the Bureau of Maternal and Child Welfare, will be unable to accept the invitation.

DR. GUSTAVE SCHRAM is the newly appointed health officer for Maui.

Announcement was made by HSPA scientists that a hospital on each island has been selected to produce sterile gauze pads inoculated with *penicillium notatum* for application externally to open wounds.

Resignation of DR. EDWIN MCNIEL as director of the Bureau of Mental Hygiene, was accepted by the Territorial Board of Health in February. DR. WILLIAM SHANAHAN has been acting director of the bureau since Dr. McNeil's departure.

DR. EDMUND L. LEE has joined Drs. Wah Kai Chang and Clarence Chang, specializing in disease and surgery of the chest.

DR. FRANK H. LAHEY, head of the federal bureau of procurement and assignment of physicians, and director of surgery at the Lahey Clinic in Boston, spent a busy two weeks in Hawaii during which he inspected navy and civilian hospitals on Oahu and conferred with military and civilian medical men. In the course of his general survey of the medical needs of the islands, he addressed the Hawaii County Medical Society on the subject of Cancer of the Colon and Rectum. He was guest speaker at the meeting of the

Honolulu Medical Society on Friday, February 4th, with a presentation of Management of Lesions of the Stomach and Duodenum. He spoke on Thyroid Surgery at the U. S. Naval Hospital at Aiea following an inspection tour of that hospital.

Visitors in Honolulu recently from outside islands were DR. H. M. PATTERSON (Hawaii), DR. WILLIAM LESLIE (Hawaii) to attend the Tuberculosis Association meeting, DR. CLYDE PHILLIPS (Hawaii), DR. WILLIAM DUNN (Maui), DR. R. P. WIPPERMAN (Hawaii), DR. NORMAN SLOAN (Molokai).

DR. C. ALVIN DOUGAN has been working these last months with Dr. Rothwell at Kahuku.

DR. A. SUMNER PRICE took over the laboratory at Queen's Hospital the latter part of the year as its director.

DR. EDGAR CHILDS has joined Dr. Saunders in his practice.

Doctors returning from the mainland recently were FRED ALSUP, C. S. CULPEPPER, ARTHUR DURYEA, HAROLD JOHNSON and CECIL SAUNDERS.

DR. JOHN H. FARRELL has been away from the islands for some months and is reported to be in Redwood City.

DR. DOUGLAS MURRAY is back at Paia, Maui, we are informed.

DR. ROENEY T. WEST has been transferred to the School of Aviation Medicine at Pensacola.

DR. J. W. McCLELLAN is reported to be at Fort Bliss, Texas.

DR. VERNE C. WAITE of the USPHS is now in Lexington, Kentucky, at the USPHS Hospital there.

MR. VERGIL BRADFIELD, from the University of Maryland Hospital, took over his duties as administrator for the Kapiolani Maternity Hospital on April 1st.

Arthur A. St. Maur Mouritz, M.D.

Dr. Mouritz, Honorary Member of the Honolulu County Medical Society, contemporary and co-worker with Father Damien, died at the age of 88 at the St. Francis Hospital on December 1, 1944.

Born in London, England, Dr. Mouritz studied at Cambridge and at the Paris Academy where he worked under the great Charcot. Dr. Mouritz began his medical studies at the Oxford University at the age of 16. Upon completion of his education he was sent to Africa to assist in stamping out Malaria there. Following his work in Africa, Dr. Mouritz was for two years ship's physician on sailing clippers and steamers of the Dutch Indian Company on its South American run.

In 1883 Dr. Mouritz came to Hawaii as ship's physician on the steamer Abergeldie, carrying large numbers of Portuguese agriculturalists for Hawaii's plantations. He decided to remain here.

Shortly after his arrival, King Kalakaua requested him to take a stricken English ship just arrived from Hong Kong to sea to free it from small-pox. After ten days at sea, the vessel was pronounced free from the disease by the Hawaiian health authorities.

Dr. Mouritz devoted his life in the islands almost entirely to leprosy. He spent 16 years on Molokai, 4 of them at the leper settlement at Kalaupapa where he was a co-worker with Father Damien. The remaining 12 years he spent on leeward Molokai continuing as consulting physician to the Kalaupapa Settlement. He was always close to the Hawaiian people.

He served also as an expert inspector of the Goto leprosy treatment in 1893-1895. Although great hopes were held out for the treatment, he was of the opinion that it was more harmful than helpful. Eventually the treatment was discontinued.

Dr. Mouritz was a prolific writer, but is best known for his book *Path of the Destroyer*, now out of print. He was a frequent contributor to the newspaper writing on professional topics. In 1916 he published, *A History of Leprosy in the Hawaiian Islands* and wrote another book on *Hawaii's Revolutions*. He was an authority on Japanese history and an exponent of the belief that the islands were discovered by the Spanish before Captain Cooke.

Among his other writings were *Historical Castles*, London 1882; *The Tragedy of the Careless*, Cincinnati, 1906; *Brief World History of Influenza*, Honolulu 1920; *Conquest of Small-Pox*, Honolulu 1924, and *Our Western Outpost*, Honolulu 1935. Just prior to his death a revision of his book on *History of Leprosy* was published by the Hawaiian Printing Company of Honolulu, so that we know up to the end of his useful life leprosy remained his keen interest.

Dr. Mouritz was a man of courage, but he was extremely anti-social. He was not a member of organized medicine, but was given an honorary membership by the Honolulu County Medical Society in 1934. His friends were very few but to those he was very loyal. He was a widower and nothing was known of his family. He was of a very retiring disposition, and in the last years of his life in Honolulu he lived alone in a cottage off Vineyard Street practicing medicine among the poor, giving freely of his time, services and medicine to those who cared to come to him. Very proud and of an independent spirit he refused any help from his fellow physicians, often giving away to his patients or neighbors what was given to him by others. Nothing was more difficult than to take care of him during his last illness.

Dr. Mouritz' life was an unselfish one and one of good deeds. Truthfully one may say, "Transiit Benefaciendo."

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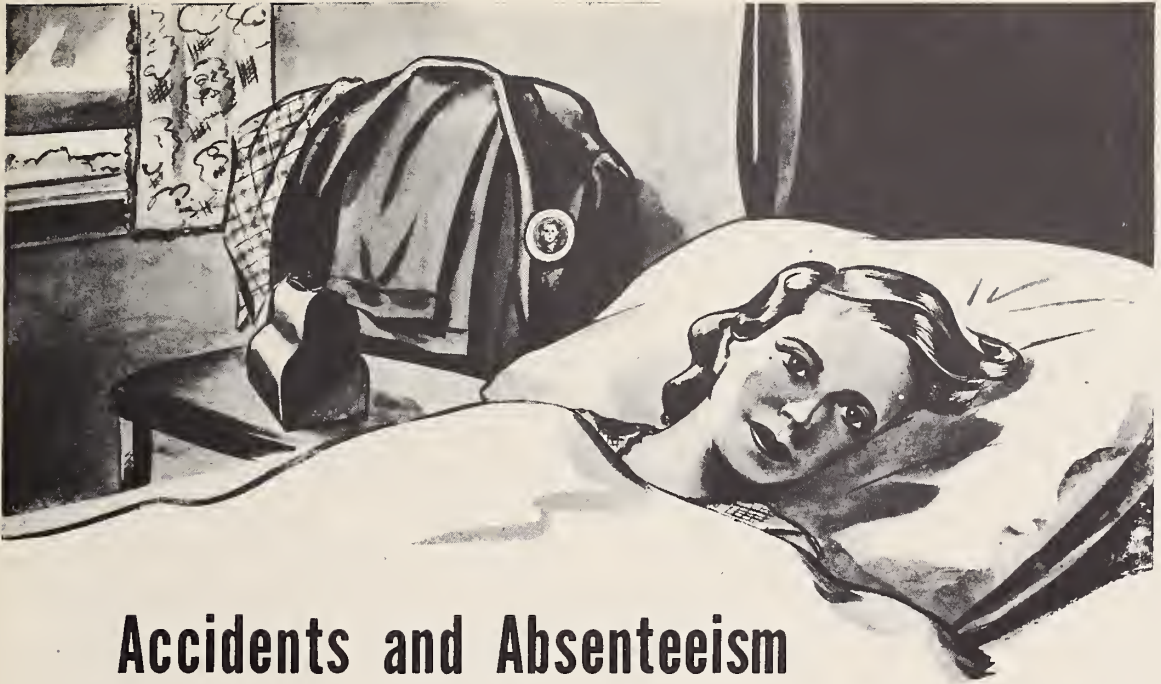
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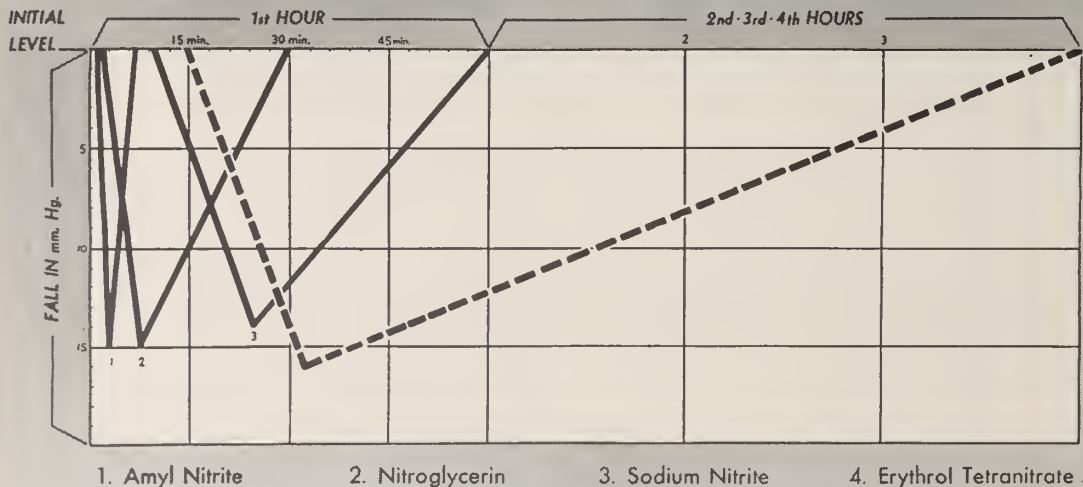
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NUTRITIONAL ANEMIA IN INFANTS

REASONS FOR EARLY FEEDING OF PABLUM (OR PABENA)

1. The infant's initial store of iron is rapidly depleted during the first months of life. (Mackay,¹ Elvehjem²). About 30% of the iron freed from the hemoglobin during the first two months is lost, and while hemoglobin destruction takes place, all infants are in negative iron balance. (Jeans,³ and Usher, et al.⁴).
2. During the early months of life the infant obtains very little iron from milk —1.44 mg. per day from the average bottle formula of 20 ounces or possibly 1.7 mg. per day from 28 ounces of breast milk. (Holt,⁵ Jeans³). The incidence of nutritional anemia has been found to be high among infants confined largely to a diet of cow's milk. (Davidson, et al.⁶ Usher, et al.,⁴ Mackay¹).

For these reasons and also because of the low hemoglobin values so frequent among pregnant and nursing mothers (Strauss,⁷ and Gottlieb and Stearn⁸), the pediatric trend is constantly toward the addition of iron-containing foods at an early age, both to normal infants and those with pylorospasm. (Neff,⁹ Blatt,¹⁰ Brennemann,¹¹ Monypenny¹²).

THE CHOICE OF THE IRON-CONTAINING FOOD

1. Many foods high in iron actually add very little to the diet because much of the mineral is lost in cooking or because the amount fed is necessarily small or because the food has a high percentage of water. Strained spinach, for instance, contains only 1 to 1.4 mg. of iron per 100 Gm. (Bridges¹³).
2. To be effective, food iron should be soluble. Some foods fairly high in total iron are low in soluble iron. Thus egg yolk and liver have less soluble iron than does farina, which is very low in total iron. (Summerfeldt¹⁴). Oxalate-containing leafy vegetables are low in soluble iron and appear not to be well utilized as a source of iron by infants. (Kohler, et al.,¹⁵ and Stearns¹⁶).
3. Pablum (and Pabena are high both in total iron (30 mg. per 100 Gm.) and soluble iron (7.8 mg. per 100 Gm.) and can be fed in significant amounts at an early age, without digestive upsets. (Blatt,¹⁰ Monypenny¹²). Clinical studies of sick and well babies have shown Pablum to be of value in raising hemoglobin values (Crimm, et al.,¹⁷ Summerfeldt and Ross¹⁸), even when egg yolk and spinach were not effective (Stearns¹⁶).

Pablum, a palatable mixed cereal food, vitamin and mineral enriched, and cooked thoroughly and dried, consists of wheatmeal (farina), oatmeal, wheat embryo, cornmeal, powdered beef bone, sodium chloride, alfalfa leaf, brewers' yeast, and reduced iron. (The oatmeal form of Pablum is called Pabena.)

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MODERN MANAGEMENT

PROPER DIET

EMOTIONAL GUIDANCE

ADEQUATE REST

SPECIAL MEDICATION



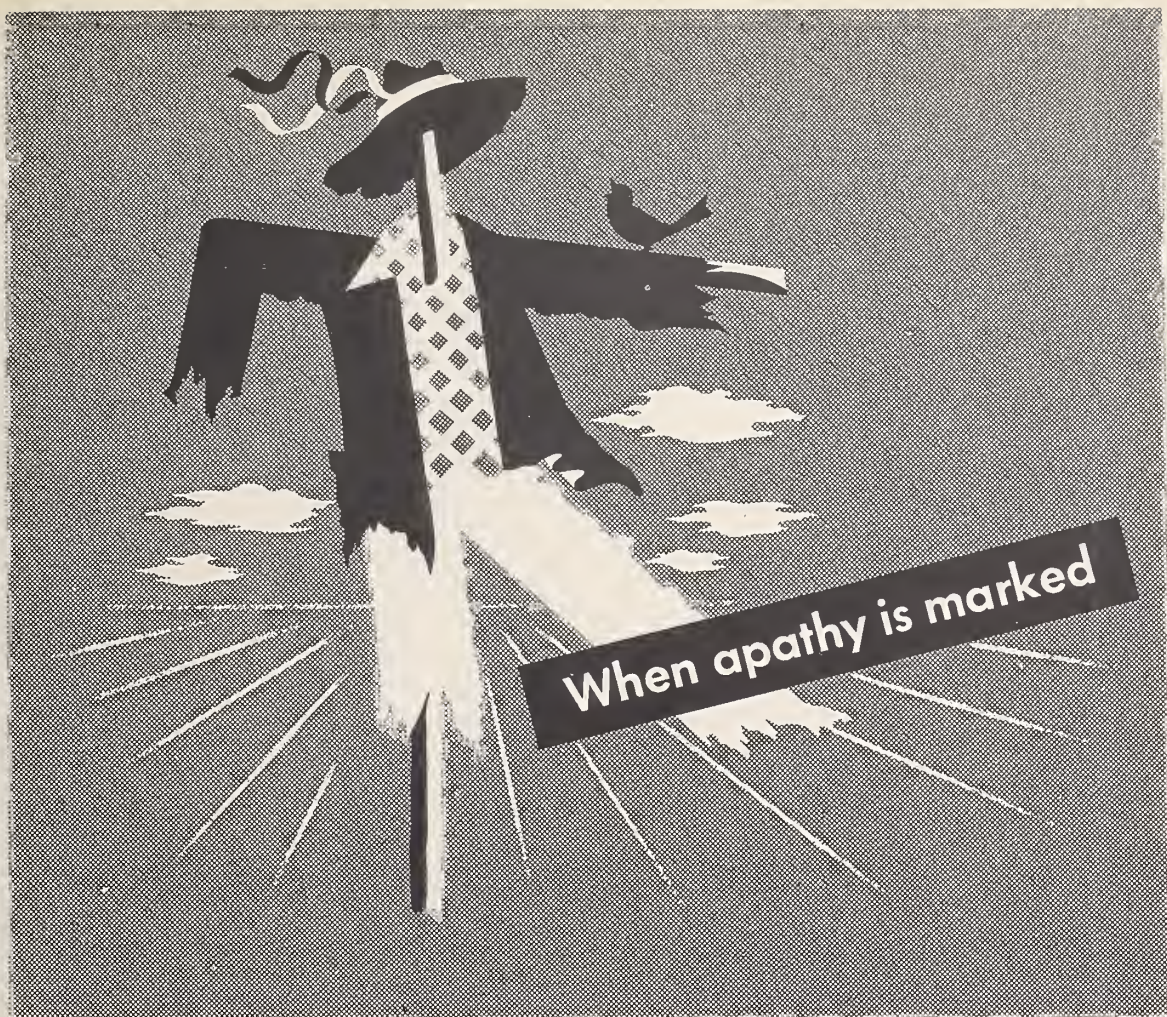
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TABLE OF CONTENTS

WEIL'S DISEASE

A Report of Thirty-seven Cases

H. M. Patterson, M.D..... 213

NEUROPSYCHIATRIC COMMENT

Modes of Admission or Commitment to the

Territorial Hospital

E. A. Stephens, M.D..... 237

BACILLARY DYSENTERY

With Special Reference to the Epidemic on Maui

W. B. Patterson, M.D..... 222

HOSPITAL NEEDS

Waimano Home

Thomas B. Vance..... 241

EDITORIALS

PENICILLIN 229

INTER-SOCIETY COMMUNICATIONS 229

SYPHILIS IN HAWAII..... 229

SULFADIAZINE FOR EARLY BUBONIC

PLAGUE 230

THE EMIC PROGRAM..... 230

EMERGENCY MEDICAL SERVICE

Report and Review of Year's Activities

H. L. Arnold, M.D..... 247

CLINICO-PATHOLOGICAL COMMENT

Transfusion Reactions

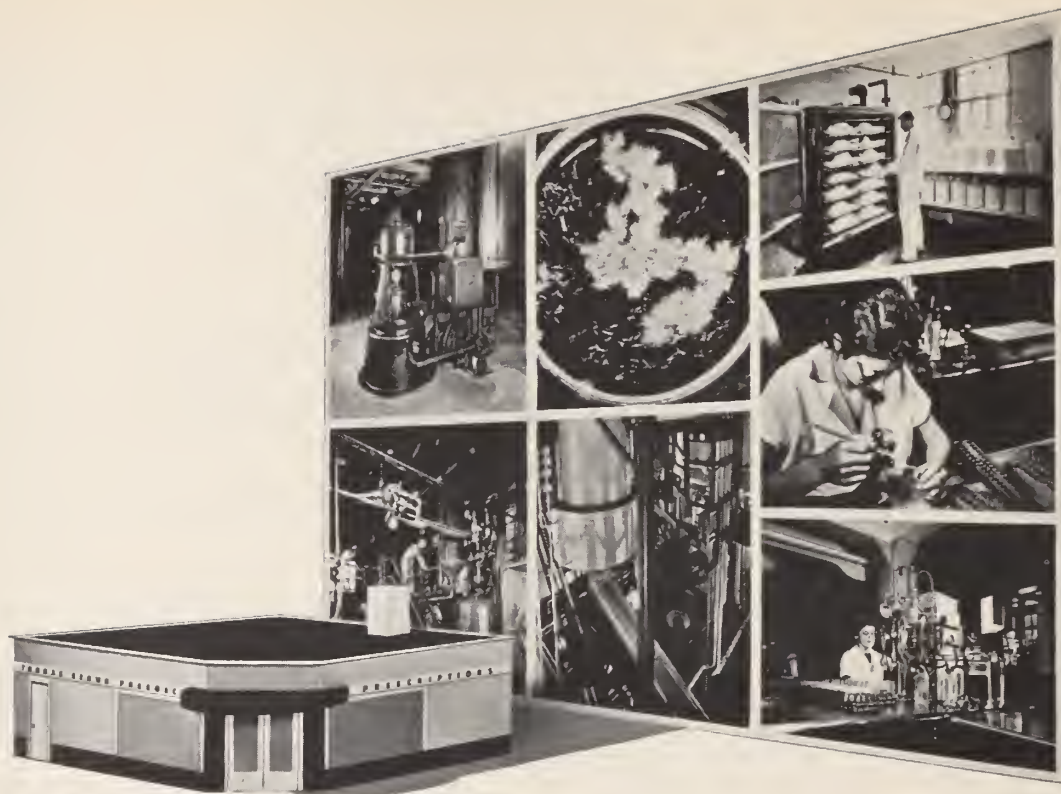
A. Sumner Price, M.D..... 231

COUNTY SOCIETY REPORTS..... 251

LIBRARY NOTES 259

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Weil's Disease

A REPORT OF THIRTY-SEVEN CASES

H. M. PATTERSON, M.D.

Olaa, Hawaii

Weil's disease is an acute febrile illness producing generalized signs and symptoms, with or without clinical jaundice, caused by *Leptospira icterohemorrhagiae*. Because of common usage, the term Weil's disease will be used in this paper, although possibly the newer term, leptospirosis, is preferable, since not nearly all cases show jaundice, and Weil's disease, to the average physician, suggests infectious jaundice. The terms infectious jaundice and spirochetal jaundice are even more confusing and will not be used.

Between October 12, 1941 and November 6, 1943, 37 proven cases of Weil's disease were admitted to the Olaa Hospital. In March 1942 a preliminary report of the first case was published¹.

Most of the articles on this subject, especially the earlier ones, report one or only a few cases and proceed to summarize the literature, often, it seems, repeating errors. Many articles on Weil's disease reporting a larger number of cases summarize cases developed on the services of many physicians either in one hospital or in scattered hospitals. A summary, therefore, of thirty-seven case histories from one community, treated by one physician, in one hospital, it was felt, would be a contribution to the literature. The extensive bibliography will be omitted and references made only to the literature immediately concerning this presentation.

The present study began two months before Pearl Harbor and has been handicapped by the events in Hawaii since then. Most of the time the Olaa Hospital has been without a laboratory technician and many of the usual procedures in the study of Weil's disease have been omitted; the ordinary laboratory work was done by the author. An attempt will be made to show that only a few criteria are necessary for the accurate diagnosis of Weil's disease, and that the most important single procedure is the blood serum agglutination test. In every case of this series, agglutination tests were done by J. E. Alicata, Ph.D., of the University of Hawaii Parasitology Laboratory, without whose assistance this study would have been impossible.

All patients in this series were admitted to the hospital for a clinical illness and were studied for Weil's disease because this was suspected. The random survey of workers made here recently for *Leptospira agglutinins* accounted for no patients in this series.

INCIDENCE

Locale. The Olaa Hospital serves the Olaa Sugar Company, with an average population of 5,200 for the past two years, and about 2,000 others in the surrounding area. A large percentage of these people receive all their medical care at the Olaa Hospital. The 37 patients in this report were all from the sugar company population, coming from several villages (see Table 1) as follows:

Pahoa	19
Olaa	10
Kapoho	4
Mountain View	4

The different races figuring in this report are distributed in about the same proportion in all the villages except Kapoho. This village, though small, has more Filipinos, and 2 of the 4 Filipinos of this series were from that village.

TABLE 1. *Miscellaneous Data on Patients with Weil's Disease*

CASE NO.	AGE	SEX	RACE	MARITAL STATUS	OCCUPATION	VILLAGE RESIDING
1.	21	M	J	S	CC	Pahoa
2.	19	M	J	S	CC	Pahoa
3.	30	M	F:	S	CC	Olaa
4.	43	M	P	Ma	Loco. Fireman	Olaa
5.	17	M	J	S	CC	Olaa
6.	15	M	J	S	CC	Olaa
7.	14	M	J	S	CC	Olaa
8.	19	M	J	S	CC	Olaa
9.	17	M	J	S	CC	Pahoa
10.	24	M	J	S	CC	Pahoa
11.	16	M	J	S	CC	Pahoa
12.	15	M	J	S	CC	Pahoa
13.	12	F	P	S	Sch. Girl	Olaa
14.	16	M	J	S	CC	Olaa
15.	15	M	J	S	CC	Olaa
16.	19	M	J	S	CC	Pahoa
17.	36	M	F:	Ma	CC	Pahoa
18.	14	M	J	S	CC	Pahoa
19.	18	M	J	S	CC	Pahoa
20.	44	M	F:	S	Grass-cutter	Kapoho
21.	18	M	J	S	CC	Pahoa
22.	25	M	J	Ma	CC	Pahoa
23.	17	M	J	S	Grass-cutter	Mt. View
24.	19	M	J	S	CC	Kapoho
25.	53	M	F:	S	Ratman	Kapoho
26.	19	M	J	S	CC	Mt. View
27.	18	M	J	S	CC	Mt. View
28.	24	M	J	S	CC	Pahoa
29.	15	M	J	S	CC	Mt. View
30.	19	M	J	S	CC	Pahoa
31.	16	M	J	S	CC	Olaa
32.	41	M	J	Ma	CC	Pahoa
33.	43	F	J	Ma	CC	Pahoa
34.	18	M	J	S	CC	Pahoa
35.	19	M	J	S	CC	Pahoa
36.	35	M	J	Ma	CC	Kapoho
37.	20	M	J	S	CC	Pahoa

Key to abbreviations:

M—Male F—Female J—Japanese F:—Filipino
P—Portuguese S—Single Ma—Married CC—Cane Cutter

Occupation. Table 1 shows that 34 of our patients were cane cutters; 2 were grass cutters, 1 a locomotive engineer, 1 a rat-catcher, and 1 a school girl.

The records of the sugar company showed total employees as of September 1, 1943 to be 2,014. Of these, 104 were employees paid on a monthly basis and 1,806 were hired on a daily basis. Thirty-five patients in our series came from this latter group of daily laborers, and only 1 from the regular monthly employees, this single case being a locomotive fireman who, according to his history, was exposed to all the hazards of the cane cutter. The remaining case was the daughter of an employee.

Sex. The total of 2,014 employees of the sugar company, classified as to sex, showed 1,686 males, 129 females and 199 younger workers between 14 and 16 years of age, with about an equal number of each sex.

All of our cases but 2 occurred in male workers, the school girl and one female cane-cutter representing the only female patients.

Six of the male patients, and 1 of the female patients, were married.

Nationality. According to the records of the sugar company, the 1,585 male day laborers were divided according to race as follows:

- 755 Filipino
- 659 Japanese
- 95 Portuguese
- 76 others

Divided as to race, our series showed 31 Japanese, 4 Filipino and 2 Portuguese.

The sugar company's records show that 54.2 per cent of cane-cutters are Filipinos and only 45.8 per cent are Japanese.

Age. Age range in our series was from 12 to 53, divided as follows:

- 25 patients below 20 years
- 5 patients between 20 and 30
- 2 patients between 30 and 40
- 4 patients between 40 and 50
- 1 patient was 53

Of the 25 patients in our series who were 20 years of age and below, 24 were Japanese. This is accounted for by the fact that most of the young workers are Japanese. Since 1932 there has been no importation of Filipino labor to this plantation and since most of the Filipinos are unmarried, there have been few new employees added from that race.

General Considerations. Observation of the wearing apparel of the different races and the manner in which they performed the same work failed to reveal any remarkable difference.

Rainfall. Table 2 shows the rainfall by months in the villages and the number of cases of Weil's disease marked before the month in which the illness occurred. This table fails to explain the distribution of cases between the districts or within any district on a rainfall basis. In general it is wet in all parts of the district most of the time.

According to all the factors enumerated above, it would seem that place of residence and rainfall have no influence on the incidence of the disease; that the incidence among females was negligible; that the disease occurred predominantly among males, and particularly among males employed as field laborers; that over 83 per cent of the patients were Japanese; that 71 per cent of the patients were under 20 years of age and of that group all but 1 were Japanese.

We do not believe that the high incidence among Japanese is the important factor, but rather that the answer lies in the age factor. We believe that the

TABLE 2. Rainfall Records During Period of This Study

VILLAGE WITH POPULATION:		OLAA Pop. 2539		MT. VIEW Pop. 790		POHOA Pop. 809		KAPOHO Pop. 463	
YEAR	MONTH	CASES WEIL'S	INCHES OF RAINFALL	CASES WEIL'S	INCHES OF RAINFALL	CASES WEIL'S	INCHES OF RAINFALL	CASES WEIL'S	INCHES OF RAINFALL
1941	October		31.48		35.03	1	32.33		20.27
	November	1	10.92		12.84	1	10.51		11.18
	December	1	12.37		19.09		12.70		4.86
1942	January		1.25		2.06		1.67		1.01
	February		8.22		7.53		7.50		3.57
	March	4	53.12		57.56	1	45.90		24.57
	April	2	15.30		23.46	3	12.24		3.42
	May	1	9.83		14.56	1	8.81		7.72
	June		10.29		12.23	1	10.15		7.61
	July		8.49		13.75		6.99		9.32
	August		9.63		12.64		11.59		9.19
	September		9.55		11.95	2	11.08	1	5.01
	October		13.60		13.89		10.87		7.59
	November		6.06		9.80	1	8.21		9.14
	December		9.31		11.16	1	14.44		13.39
1943	January		14.22	1	16.76		17.73	1	16.96
	February		10.70		14.53		9.70		5.98
	March		13.24		14.46		10.13		11.62
	April		8.20		12.43		8.85		7.02
	May		9.73		12.03		14.22	1	8.81
	June		15.60	1	20.55		14.41		11.20
	July	1	12.64	2	24.57	4	12.06		8.24
	August		8.92		17.81		9.91		7.05
	September		6.92		9.85	2	6.65		3.81
	October		3.44		9.66	1	6.63	1	4.57
	November		3.87		6.89		3.87		2.92
	December		13.40		11.60		10.99		8.13
Totals		10	330.30	4	428.69	19	330.14	4	432.13

older workers are now largely immune to Weil's disease by reason of having had the disease in the past. J. E. Alicata has been conducting a survey during the past year in an attempt to determine this fact by testing the serum of large numbers of workers for *Leptospira agglutinins*. The results of this survey are yet to be published. It is known that many patients maintain high titre of agglutinins for *Leptospira* for many years after the illness, though in some the titre quickly diminishes. Though one would expect the titre to be a measure of immunity, this is not necessarily so. The present incidence of the disease here leads us to believe that most of the older field workers are immune to the disease even though some of them may show no agglutinins.

It is interesting to note that young white mice and young guinea pigs have been found repeatedly to be the most reliable laboratory animals to use in studying Weil's disease, and here in our series we have found the disease principally in the young human.

MODE OF ENTRY

Various suggestions have been made as to the mode of human infection in Weil's disease. The leptospira may be demonstrated in the urine of some recovered patients nine or more weeks after the onset. Since no regulations exist requiring isolation, the convalescent patient and the recovered patient are allowed to scatter the leptospira anywhere. It is no wonder that many animals, such as cats, pigs, dogs, rats and mongooses, have been demonstrated to have the disease. The latter three animals have been shown in Hawaii to harbor the leptospira.

All the patients of this series were questioned about their habits and environment. The results are shown in Table 3.

TABLE 3. Information on Habits and Environment of Patients

QUESTIONS	ANSWERS	
	YES	NO
1. While working do you drink water from open ditches, barrels, flumes or any source other than water furnished by the Sugar Co.?	5	32
2. Is your water system at home accessible to rats? (Open tank, etc.)	21	16
3. Do you see or hear rats around your home?	28	9
4. Do you chew raw sugar cane?	27	10
5. Do you go barefooted at home?	21	16
6. Do you have a dog?	7	30
7. Do you have a cat?	20	17
8. Do you have other animals such as pigs and rabbits?	8	29

The answers to questions (1) and (2) would suggest that the drinking of contaminated water is not the mode of entry in our cases. Going barefooted around premises contaminated with rat urine may be a factor. The presence of animals about the premises does not seem to be the answer.

The chewing of raw sugar cane may be a factor. Inquiries show that the older Filipino men chew cane more often than other older men but most young

workers chew cane either at work or coming from work. Though the inside of the stalk of cane is the part chewed, the man either cuts off the covering with his contaminated cane knife or tears off the covering with his teeth, exposing his lips and buccal cavity to the outside of the cane stalk and often scratching and traumatizing his lips or gums. Though it is certainly possible, I do not feel that the chewing of sugar cane accounts for the mode of entry.

In all parts of the district mongooses are present in large numbers and these eat rats which are present in even larger numbers. The sugar cane largely lies along the ground when it is ready for harvesting. The cane cutter cuts the cane and usually piles it up, and it is quite possible that the leptospira enters the body through scratches on the hands, forearms, neck or face, or the worker may get the organisms into his eyes or mouth while wiping sweat away or eating lunch with contaminated hands. The trousers and shoes of the worker are usually so arranged that his feet stay dry, but in some cases he works with wet feet all day, and the leptospira may enter his body through cracks between the toes. As will be discussed below, an early sign and one always present is a marked conjunctivitis and scleritis. I believe that the leptospira usually enters the body through the conjunctiva. The next most likely portals of entry are scratches on the body, and the least likely portal is the mouth.

HISTORY AND SYMPTOMS BEFORE ADMISSION TO THE HOSPITAL

Twelve patients were admitted on the first day of illness,¹ one on the tenth day, and the average were ill three and one-fourth days before admission. The first symptom in 18 patients was headache; in 34 patients headache was a symptom at some time before admission and in 2 others the eyeballs were sore. The headache was general in 18 patients and frontal in 13. Six patients first complained of chills, 3 of mal-

TABLE 4. Symptoms Complained of Prior to Admission or at Onset of Illness

AT ONSET	
18:	headache
6:	chills
3:	malaise
2:	sore eyeballs
2:	backache
2:	pain in calves
1:	giant urticaria
1:	nausea
1:	dizziness
1:	fever
BEFORE ADMISSION	
37:	general malaise
37:	anorexia
34:	headache
19:	chills
16:	painful calves
13:	vomiting
8:	dizziness
5:	nausea
5:	coryza, mild
5:	sore or red eyes
2:	constipation
2:	epigastric pain
2:	tinnitus
2:	diarrhea

aise, 2 of soreness of eyeballs, 2 of backache, 2 of pain in calf muscles, one of giant urticaria, one of nausea, one of dizziness and one of fever. All patients upon admission complained of generalized malaise and loss of appetite. At some time before admission 19 patients had chills and 16 had more pain in calf muscles than in other muscles of the body. Before admission 13 patients vomited, 5 were nauseated, 2 had diarrhea, 2 were constipated, 2 had epigastric pain, 5 had mild symptoms referable to the upper respiratory tract, 8 had dizziness, 2 had ringing in the ears and 5 complained of pain, redness or soreness of the eyes.

POSITIVE PHYSICAL FINDINGS UPON ADMISSION

Every patient in this series had suggestive eye signs upon admission. The literature mentions a conjunctivitis as occurring in Weil's disease. There is more to the picture than this; there is conjunctivitis and scleritis. The writer has seen the same condition in no other disease. The eyes are lusterless, varying from pink to red and appearing soiled. There are conglomerations of tortuous vessels throughout the conjunctiva and sclera, these vessels appearing larger, more engorged and more cyanotic than normal. Light hurts the eyes, but in only 2 patients were the eyeballs tender to pressure. There is no discharge and no abnormal secretion. These eye signs are so marked and so unlike any seen in other conditions that to the writer they are the most important diagnostic sign and distinguish Weil's disease from influenza. Dr. T. Keay first called my attention to these signs over two years ago and recently he has discussed them in a paper on this disease.²

TABLE 5. *Physical Signs Present Upon Admission*

████████████████████	37: scleritis & conjunctivitis
████████████████████	36: muscular weakness
████████████████████	30: muscular tenderness
████████████████████	22: prostrating weakness
████████████████████	10: calf muscles tenderer than others
████████████████████	7: jaundice
████████████████████	3: hypotonic muscles
████████████████████	2: dehydration
████████████████████	1: joint tenderness
████████████████████	1: deep epigastric tenderness
████████████████████	1: injected ear drums
████████████████████	1: flushed face
████████████████████	1: delirium

All the patients were listless and looked sick. Thirty-six had generalized muscular weakness and in 22 this was so severe the patient could not walk or did so with great difficulty. Thirty patients showed generalized muscular tenderness, in 10 of these the calf muscles were more tender than the rest of the body and in one the intercostal muscles were more tender.

Jaundice was present upon admission in the skin and sclerae of 7 patients, graded moderate in 1 and mild in 6. The only other pertinent findings upon admission were giant urticaria in one patient, flabby muscles in 3 patients, tenderness in joints in 1, deep epigastric tenderness in 1 patient, dehydration of skin and tissues in 2 patients, injection of both ear drums

in 1 patient, flushing of face in 1 patient and delirium in 1 patient.

SYMPTOMS WHILE IN THE HOSPITAL

All patients had generalized malaise and 36 had aches and pains and weakness of the muscles on at least the first hospital day. Thirty-two had headache, 17 were constipated to a degree requiring enemas or mild laxatives, 1 had diarrhea, 3 were nauseated, 2 had sore throat, 6 had epigastric pain, 2 had very

TABLE 6. *Symptoms Complained of During Hospitalization*

████████████████████	37: general malaise
████████████████████	36: aches & pains
████████████████████	36: weakness
████████████████████	32: headache
████████████████████	17: severe constipation
████████████████████	6: epigastric pain
████████████████████	3: nausea
████████████████████	3: dizziness
████████████████████	2: sore throat
████████████████████	2: painful neck muscles
████████████████████	2: severe headache
████████████████████	2: cough
████████████████████	1: substernal pain

painful neck muscles, 3 had dizziness, 2 had severe headache, 2 had cough and one of these had pain in the sternal area of the chest.

POSITIVE PHYSICAL SIGNS WHILE IN HOSPITAL

All patients showed the conjunctivitis and scleritis referred to previously. While only 7 patients had jaundice of skin and sclerae upon admission, 9 others, or a total of 16, had jaundice while in the hospital. This jaundice was of the sclerae alone in 2 cases, the sclerae and palms alone in 2 cases, and in the other 12 cases it was of the sclerae and the skin generally. The jaundice was graded mild in 8 cases, moderate in 4 cases and very deep in 4 cases. Of the 7 patients who had jaundice upon admission only 2 showed deepening of the jaundice in the hospital. This inci-

TABLE 7. *Physical Signs Noted During Hospitalization*

████████████████████	37: scleritis & conjunctivitis
████████████████████	16: jaundice
████████████████████	9: nosebleed
████████████████████	5: liver enlargement
████████████████████	3: petechial eruption
████████████████████	2: spleen enlargement
████████████████████	2: acholic stools
████████████████████	2: gastrointestinal bleeding
████████████████████	2: urticaria
████████████████████	1: cardiac embarrassment
████████████████████	1: eyelid edema

dence of jaundice is most important, occurring in this series in only 43 per cent of the cases.

The liver and spleen were both enlarged in 2 cases and the liver alone in 3 cases. There were nose bleeds in only 9 cases, mild in 3 cases, moderate in 3 cases, and so severe in 3 cases as to require packing and other measures. One patient had blood streaked mucous expectoration associated with dirty, dry, coated teeth and gums and no pulmonary signs or symptoms. Two of the patients who had severe nose bleeds also had bleeding from the lips, gums, and mucous membranes of the mouth, and vomited dark blood in copi-

ous amounts and passed both dark and bright blood in bowel movements. These 2 patients also had abdominal rigidity and distention and these, together with one other with mild jaundice, had a generalized petechial rash as the jaundice began to clear. Aside from this rash in 3 cases, no rash was found. One patient had edema of the eye lids, 2 had generalized urticaria, 2 had such severe conjunctivitis and scleritis that these conditions had to be treated, one had signs of mild heart failure and was given digitalis, and one had inguinal adenitis.

In only 2 cases were clay-colored stools noted and these for only two days. The color of the stools was normal otherwise except in those cases with blood in the stools.

One of the most constant and important features of the disease was weight loss. Thirty-five patients were weighed upon leaving the hospital or when they definitely began to improve. One very severely ill patient whose usual weight was 130 pounds weighed only 95 pounds nineteen days after the onset of his illness and eighteen days after admission. Ten patients lost over 15 pounds. The weight loss varied from 35 pounds to 2 pounds with the average being 11.6 pounds.

TEMPERATURE, PULSE AND RESPIRATIONS IN THE HOSPITAL

In only 3 of the cases was the temperature normal or below upon admission. The highest admission temperature was 104.2 F. and the average admission temperature was 101 F. The temperature reached its highest point on the day of admission in 22 cases and in one case on the seventh day, the highest fever being recorded on the average after 1.9 days in the hospital.

In one patient the temperature only reached 100.2 F. at its peak while all the other patients had higher peak temperatures than this, the highest being 104.4 F. and the average 102.8 F. The temperature reached normal for the first time on the second day in 10 patients and on the eleventh day in 1 patient. The temperature remained normal in the earliest case on the second day and in the latest case on the thirty-first day. In 35 patients the temperature was of the up and down variety and in the other two it dropped abruptly. In no patient was there a secondary rise in temperature after a day or more of normal temperature. In nearly every patient the temperature rise was out of proportion to the rise in pulse rate.

The pulse rate upon admission was below 80 per minute in only 2 patients, the highest rate being 124. The average pulse rate was 91. In only 3 patients was there a rise in the pulse rate in the hospital; one of these had pulse of 64 on admission which rose to 96 on the same day.

The respiratory rate ranged from 20 to 26 per minute, the average being 22.

LABORATORY FINDINGS

All the laboratory work that time and personnel would allow was done. We did no Van den Bergh tests, no icterus indices, no complicated tests for bile in the urine, no blood non-protein nitrogen determinations and other procedures usually reported in a study of Weil's disease. At first we inoculated guinea pigs with blood and urine, but we soon discontinued this because of the difficulty in transporting these to the Board of Health laboratory and going there for autopsies, and because of the scarcity of guinea pigs. Of more importance were the arrangements for having blood serum agglutination tests done by Dr. J. E. Alicata, which we consider more reliable.

In October 1942 the author wrote Dr. Karl F. Meyer, of the University of California, regarding laboratory procedures in Weil's disease. Dr. Meyer's communication³ covers this phase of the subject so completely that, with his permission, we quote him directly as follows:

A serum reacting with *L. icterohemorrhagiae* in a dilution 1:300 on the sixth to eighth day of disease is diagnostically significant. However, another sample should be tested on the twentieth day. If that patient has passed through an active infection the titer will then show a definite rise. In regions where leptospiroses are by no means rare, latent infections, as indicated by a prolonged persistence of an agglutination titer of 1:300, are by no means uncommon. A titer of 1:300 with a clinical history of leptospirosis is diagnostically significant for leptospirosis, or Weil's disease. A titer of 1:30 may be noted in normal and non-infected persons or it may be seen on the fifth or sixth day of the illness. Re-tests on the fifteenth day or later are necessary.

The guinea pig tests are not very reliable. Many of the leptospira only infect *very young* guinea pigs and fatal infections are rarely observed. These rodents must be carefully examined daily beginning the fifth day after injection of blood or urine, particularly the latter. The peritoneal fluid must be studied and searched for leptospira in the dark field. When demonstrable, another guinea pig must be inoculated and even a third passage may be necessary before fatal infections are produced. Young mice are sometimes more susceptible than guinea pigs. Cultures should be prepared from the peritoneal exudate of the injected guinea pigs. One should not depend on the death of the guinea pig. The text book descriptions are not very clear about these diagnostic tests.

It is important to remember that the blood rarely contains leptospira in demonstrable numbers when the patient has clinical icteric Weil's disease or when the blood serum is rich in lysins in the concentration of approximately 1:10,000 (agglutination 1:30,000). In cases of this sort the serum test is the only test which will settle the diagnosis. You are absolutely correct when you designate a case with a titer of 1:30,000 on the fifteenth to twentieth day of illness as one of leptospirosis. To search the urine for leptospira is not an easy task—the organisms are shed irregularly. If the urine is acid the parasites are readily destroyed. As a rule they are numerous only after the fifteenth day. Again, as in the examination of the blood, I prefer cultivation in Schuffner's medium instead of inoculation of guinea pigs. Cultures must be made with catheterized urines, centrifugalized and promptly cultured, preferably near the bedside.

The cases of conjunctival hyperemia and scleral injection with profound malaise, without jaundice, are so-called an-icteric leptospira infections with pyrexia, never developing any jaundice. These so-called mild infections are frequently due to leptospira of low pathogenicity causing very little hepatic damage. In order to diagnose such infections correctly it is important to collect a specimen of the serum during the acute phase and then a secondary one during the convalescent phase of the disease. A definite rise in the titer proves beyond a doubt that the illness was caused by a mild attack of Weil's disease. If no rise is demonstrable then the agglutinins are merely residuals of a previous mild or even latent infection. One should never depend on one serum test alone. Needless to emphasize, when the guinea pig test is positive an active infection is present irrespective of the agglutination titer. A titer of 1:300 on the fifth (?) and again on the twentieth (?) day merely indicates that the patient has in the past had some experience with leptospira and that the present illness is due to some other factor or factors.

Before receipt of this communication from Meyer³ we were attempting to do guinea pig inoculations with

TABLE 8. *Miscellaneous Laboratory Procedures Done in Early Cases in the Series*

CASE NO.	PROCEDURES	FINDINGS
1.	Blood injected into peritoneal cavity of G-pig on 6th day of illness. Urine injected into peritoneal cavity of G-pig on 6th day of illness.	G-pig died on 11th day. No jaundice or hemorrhages and no leptospira found. G-pig died on 13th day. Generalized jaundice and hemorrhages. Leptospira found in liver and kidneys.
2.	Blood injected into G-pig on 6th day of illness. Urine injected into G-pig on 6th day of illness.	G-pig died on 6th day. Generalized hemorrhages and jaundice. No leptospira found. G-pig killed on 14th day. No abnormal findings.
3.	Blood and urine injected into G-pig on 8th day of illness.	G-pig died on 12th day of generalized jaundice and hemorrhages. No leptospira found.
4.	Blood injected into G-pig on 11th day of illness. Urine injected into G-pig on 10th day of illness.	G-pig died in 4 days. Nothing abnormal found. G-pig died in 7 days. Nothing abnormal found.
5.	Blood injected into G-pig on 8th day of illness. Urine injected into G-pig on 8th day of illness. Urine injected into G-pig 15th day of illness.	G-pig killed in 20 days. No abnormal findings. G-pig died in 14 days of generalized jaundice and hemorrhages. Leptospira found in kidney juices and demonstrated by darkfield examination. G-pig killed in 14 days. Nothing abnormal found.
7.	Blood injected into on 7th day of illness. Urine injected into G-pig on 7th day of illness.	G-pig killed in 10 days. Nothing abnormal found. G-pig died in 9 days. Generalized jaundice and hemorrhages. Leptospira demonstrated by darkfield exam. of kidney and lung juices and by stained smear of same.
10.	Darkfield exam. of blood on 6th day of illness. Darkfield exam. of urine on 11th day of illness.	Leptospira demonstrated. Leptospira demonstrated.
19.	Blood injected into G-pig on 10th day of illness. Urine injected into G-pig on 10th day of illness.	G-pig killed in 17 days. Nothing abnormal found. G-pig killed in 17 days. Nothing abnormal found.

serum from our sickest patients. The results are shown in Table 8. Thereafter we stopped using guinea pigs and depended upon blood serum agglutina-

tion tests. The results of these tests are shown in Table 9. Some of the earlier agglutination tests were done several weeks after the clinical illness was over. In most of these cases there were other corroborating tests as shown in Table 8. In all of them the serum titre was moderately high. Later we attempted to secure a serum titre early in the disease and one later on and Table 9 shows the trend as this series of cases developed.

TABLE 9. *Blood Serum Agglutination Tests for Leptospira*

CASE NO.	SERUM AGGLUTINATION		CASE NO.	SERUM AGGLUTINATION	
	DAYS AFTER ONSET OF ILLNESS	TITRE		DAYS AFTER ONSET OF ILLNESS	TITRE
1.	86	1:10,000	23.	5	1:1,000
2.	74	1:10,000		64	1:10,000
3.	10	1:30,000	24.	8	1:10,000
4.	40	1:3,000,000	25.	9	1:3,000
5.	6	1:3,000		22	1:30,000
	13	1:30,000	26.	3	negative
6.	9	1:10,000		11	1:30,000
7.	20	1:30,000	27.	12	1:10,000
8.	16	1:30,000	28.	2	negative
9.	21	1:30,000		7	1:100
10.	9	1:1,000		14	1:30,000
11.	13	1:300	29.	6	1:10,000
12.	37	1:1,000	30.	3	negative
13.	10	1:1,000		19	1:30,000
14.	6	1:100	31.	3	negative
	25	1:300		22	1:30,000
15.	70	1:3,000	32.	6	negative
16.	8	1:300		10	1:30,000
	65	1:30,000	33.	6	negative
17.	13	negative		11	1:10,000
	360	1:1,000	34.	7	1:100
18.	22	1:1,000		12	1:30,000
19.	18	1:1,000	35.	4	negative
20.	127	1:3,000		9	1:10,000
21.	2	negative	36.	6	negative
	14	1:300		16	1:10,000
22.	4	negative	37.	7	negative
	18	1:3,000		17	1:10,000

Every patient in this series had clinical signs and symptoms that suggested Weil's disease. Thirty-four of 37 cases showed a positive leptospira agglutination of 1:1000 or over, with only 3 cases showing a titre of only 1:300 and 2 of these showed a titre rising from 1:100 to 1:300 and negative to 1:300, respectively, during their clinical illness. Of the entire series 17 cases showed a rising titre; 2 were repeated, but each time showed the same titre, 1:10,000; 1 showed a titre of 1:30,000 on two occasions and 17 did not have the titre repeated during the illness or for many months thereafter.

While blood cell counts were done on 36 patients. In one patient the highest white count obtained was 5,000 while in another the highest count was 24,100. Three patients had counts above 21,000. The average maximum white count was 11,920. Of the 16 patients who showed jaundice the average white count was 12,740.

Red blood cell counts were done in 31 patients. The lowest count in one patient was 2,010,000 and the lowest in another patient was 5,450,000. The average minimum was 3,571,000. In 15 of the 16 patients who showed jaundice, the average red blood count was 3,032,000. Hemoglobin determinations were done in 29 cases, the lowest in 3 cases being 50

per cent and the lowest in 1 case being 85 per cent. The average minimum was 65 per cent. In 15 of the 16 patients who showed jaundice, the average hemoglobin was 64 per cent.

The urine was examined in 36 patients. Seven showed no albumin, 13 were graded slight, 1 was graded one plus, 10 were graded two plus, 3 were graded three plus and 2 were graded four plus. Of the 16 patients of the series who had jaundice 12 showed albumin graded two plus or over and only 4 showed albumin graded slight. Fifteen patients showed white blood cells or clumps of pus cells in the urine with 5 of these same patients showing epithelial cells and one showing red blood cells. In addition, 2 other patients showed red blood cells in the urine and one other showed epithelial cells. Thus, of 36 patients with urine examinations, exactly one-half or 18 showed white cells, pus cells, red blood cells or epithelial cells. Of these 18 patients, 11 had jaundice. Only one patient showed casts. This patient had mild jaundice with two plus albumin in the urine which repeatedly was loaded with hyaline and cellular casts.

TREATMENT

Of the first 6 patients in this series, 5 were given courses of sulfathiazole. This was before the syndrome became clear to us. The results in these patients made us feel that sulfathiazole did not alter the course of the disease at all. Consequently in only 3 of the subsequent 31 patients was sulfathiazole given, and in one patient sulfadiazine. These drugs were given in $7\frac{1}{2}$ to 15 grain (0.5 to 1 gram) doses at four- to six-hour intervals according to the weight of the patient.

As we grew more experienced in the handling of these patients we decided that the treatment depended entirely on the severity of the signs and symptoms which developed. Twenty-three patients required analgesics because of headaches, backaches and generalized pains, 1 patient required digitalis for cardiac embarrassment, a laxative was given to 2 patients and enemas were used freely for constipation in 17 patients. Those patients with nose bleeds required treatment ranging from ice compresses to post-nasal packs. Because of the almost constant anemia, ferrous sulfate, hematinic plastules, liver and iron compounds were used freely. Three patients were given medication to decrease cough and 2 patients were given local treatment for severe conjunctivitis and scleritis. Two patients were given suprarenin and local treatment for urticaria. Four patients had vomiting of such persistence that intravenous injections of 5 per cent and 10 per cent glucose were given. Calcium intravenously was given to one patient with persistent bleeding. Vitamins C and B complex in large doses were used at first and as we saw the great loss in body weight we decided to give large doses of multiple vitamins (five or more). Vitamin K was given by mouth and intra-

muscularly in certain of the jaundiced patients and in all of those with hemorrhage.

The second patient of the series was the sickest and was given three blood transfusions. Attempts were made to secure donors from other districts who had previously had Weil's disease. These attempts failed, so whole citrated blood from compatible donors was used. Improvement was promptly noted but it was slow. At this stage it was decided that every attempt should be made in the future to have blood from recovered cases of Weil's disease available for severely ill patients. Consequently all patients in this series have been typed and all have negative Kahn tests. A list of these donors is now always at hand in case of need. Because of the severity of the illness in the second patient, it was decided to reserve blood transfusions from previous cases of Weil's disease for the severely ill patients of the future, hence no such transfusion was given until the twenty-eighth patient was admitted. This was the patient referred to above who lost twenty-five pounds during his illness. Improvement was so marked after one transfusion of 500 cc. of citrated whole blood from a patient ill with Weil's disease fifteen months before, that no further transfusions were felt to be required. At the present time our donor list is so large, and we feel that the value of whole blood transfusions from recovered patients is so great, we plan to give such transfusions to all patients in the future suspected of having Weil's disease whether they are jaundiced or not.

Much is written of developing a serum or obtaining serum from biological houses for the treatment of this disease. These patients not only need convalescent serum but they need red blood cells and all the constituents of whole blood. We repeat, we feel the principal treatment should consist of whole blood transfusions from recovered cases. In the future our treatment regimen will be as follows as soon as a patient is suspected of having Weil's disease with or without jaundice:

1. Whole blood transfusions from donors recovered from Weil's disease.
2. Good nursing care. These patients should have the same nursing procedures that are given to patients with typhoid fever, including back rubs, oral hygiene, large amounts of liquids and encouragement.
3. A light, high-carbohydrate and high-protein diet with liver in large amounts.
4. Poly-vitamin preparations in liberal doses.
5. Vitamin K by mouth, and if jaundice develops, vitamin K by muscle, and if hemorrhage develops, more vitamin K by muscle.
6. Ferrous sulfate by mouth.
7. Five per cent glucose in Ringer's solution intravenously, if vomiting persists for over six hours.
8. Analgesics, usually acetylsalicylic acid, for aches and pains, as required.
9. Enemas and mild laxatives, if required, for constipation.

10. Bed pans, urinals and linen to be sterilized.
11. Because the leptospira does poorly in acid urines, medication will be given during hospital stay and convalescent period to insure urine acidity.
12. Occasional special signs and symptoms to be given suitable treatment.
13. During the convalescent period a high-caloric, reinforced diet to be given and light work to be allowed until all weight loss is made up.

PERIOD OF HOSPITALIZATION

Fourteen of the 37 patients were in the hospital over 14 days and 5 over 20 days. The shortest period of hospitalization was 3 days, the longest 37 days, and the average was 10 days.

PERIOD OF DISABILITY

We find upon checking the turn-out records in the sugar company that the number of days in the hospital is not nearly the whole picture.

Eighteen of the patients who were regular full-time employees of the company for four months before and for four months after the onset of their illness, showed 1,385½ work days for the four months before their illness and a total of 771 work days for the four months after recovery, or a total of 614½ days lost by 18 men. Two of these patients showed poorer work records for the entire year following illness and then began to turn out about as before.

The remaining 19 patients are made up of various categories of workers; 1 was not employed; 6 were employed in the young peoples' Victory Corps and worked only on week-ends; 6 had been employed less than four months before they became ill; 2 left our employment less than four months after their illness began, 4 became ill less than four months before this paper was written, and 2 were occasional workers. The total work days before and after illness developed for this variously classified group are as follows, using the same number of days on the payroll before and after onset of illness: total days of work before onset of illness 588½; total days of work after onset of illness 267½, or a total of 309½ lost days of work.

From these figures it can be seen that the actual number of lost man days by the 36 patients has been 924; in no case were turn-out figures used going farther than four months before and four months after the onset of illness.

COMPLICATIONS AND SEQUELAE

All the patients in this series have been under the close supervision of one physician during their illness and two months to two years thereafter. The only complications or sequelae other than those mentioned under "Physical Signs While in Hospital" and "Period of Disability" which occurred were signs and symptoms referable to the eyes in five cases.

Case 4 complained of dimness of vision one month after discharge from the hospital. Repeated examinations during the following year showed his eyes and visual tests to be normal for a man of 43. Case 16 developed a uveitis seventeen months after discharge; he was found to have several infected teeth. He recovered following their correction. Case 27 developed uveitis two weeks after discharge and was found to have advanced sinus disease. Case 30 developed an iritis two weeks after discharge. He was found to have a purulent antrum and has responded to corrective treatment. These four cases were examined by Dr. H. H. Crawford, of Hilo, who in a personal communication⁴ has furnished a report of his findings.

Case 33 complained of dimness of vision for three weeks after discharge from the hospital. Examination one month after discharge showed normal response to visual tests and no abnormal eye findings. This patient was 43 years of age.

In the five patients where complicating signs and symptoms developed none could definitely be blamed upon the previous illness from Weil's disease. However, it is probable that Weil's disease precipitated the complication in all except Case 16 whose complicating uveitis occurred seventeen months after recovery from Weil's disease.

MORTALITY AND PATHOLOGY

There were no deaths in this series, consequently the pathology will not be discussed.

COMMENTS

Except for the 12-year-old girl, all patients in this series were workers concerned directly with the handling of sugar cane before it reached the sugar factory. Weil's disease would appear then to be essentially an occupational disease in this area. The long period of convalescence may cause the patient to be a poor worker for a year after his illness which an industry hard pressed for labor can ill afford.

The theory is advanced that the relatively high incidence of Weil's disease in the young Japanese in this area is due to the fact that most of the new cane cutters come from this group, while most of the other field workers have probably had the disease in the past and are immune.

There have been no proper efforts in the Territory to prevent the dissemination of the leptospira in the urine of the convalescent patient. At least the urine should be kept thoroughly acid for many weeks after the development of the disease.

Table 2 shows that the distribution of cases cannot be explained on the basis of rainfall. An interesting point brought out by this table, however, is that the cases occurred as a group in one village, then as a group in another village. This is more clearly shown

in Table 1 in the column showing the village of residence. It is possible that the leptospira is more virulent at certain times or in certain plots.

Support for the theory that the mode of entry of the leptospira in the human is through the conjunctiva has been advanced. The leptospira withstands an acid reaction poorly and the upper intestinal tract is usually acid, even the saliva having a pH of about 6.9. The pH of the conjunctival fluid is about 7.2, or on the alkaline side, which fact, along with the exposure of the conjunctiva and the outstanding eye signs early in the disease, suggests this as the mode of entry.

We do not agree with the literature that the diagnosis of Weil's disease should be difficult, nor do we feel that it should be confused with early pneumonia. We have not found a high incidence of gastro-intestinal symptoms. In the two patients of our series who had an abdominal crisis it was to be expected because of their severe illness. Likewise the delirium of one of these patients could be expected and it in no way suggested that he had a different clinical type (meningeal) of Weil's disease. The liver and spleen are not enlarged in as many patients as the literature indicates and a rash is almost never present; when it is, it is associated with the generalized jaundice. The presence of casts in the urine is not as frequent as the literature indicates, though we have not done daily microscopic urine examinations in every case and this study has included almost no other tests of kidney function.

We feel that the diagnosis of Weil's disease without jaundice can be made clinically in this area, although we advocate serum agglutination tests as was done in all patients of this series. For a description of the method of serum agglutination for leptospira the work of Alicata⁵ may be referred to.

We have not found, as reported in the literature, a secondary rise in temperature after the second week in even our sickest patients.

SUMMARY

Thirty-seven cases of Weil's disease are reported from one community, treated in one hospital by one physician.

In the Olaa area of Hawaii this disease is essentially an occupational one occurring principally in male Japanese cane cutters below 24 years of age.

The distribution of the cases does not follow the rainfall curves.

The first symptom in 50 per cent of the patients was headache, but this symptom was present in 34 patients at some time before admission. All the patients had loss of appetite and generalized malaise, with 50 per cent having more pain in the calf muscles than elsewhere. Nineteen patients had chills and 13 vomited before admission. All patients had outstand-

ing eye signs (conjunctivitis and scleritis), which is the most important finding in this disease. All patients were listless and 36 had muscle weakness with 30 showing muscle tenderness upon admission. Twenty-two could not walk without difficulty. Jaundice was present upon admission in only 7 patients and developed later in only 9 others. Liver or spleen enlargement occurred in only 5 patients while hemorrhage occurred in 10 patients. Constipation occurred in 17 patients.

Weight loss averaged 11.6 pounds.

The average peak temperature was 102.8 F. The average peak pulse was 91, and the average peak respiratory rate was 22.

The average white blood cell count was 11,920; red blood cell count 3,571,000 and hemoglobin 65 per cent. Twenty-nine patients showed albumin in the urine, 18 showed cells of some kind in the urine and only one showed casts. All patients had positive blood serum agglutinations for leptospira icterohemorrhagiae in dilutions of 1:300 or more.

The treatment of choice is whole blood transfusions from convalescent patients. Otherwise the treatment is largely symptomatic. Sulfathiazole and sulfadiazine seem ineffective.

CONCLUSIONS

1. Weil's disease is much more prevalent on the Island of Hawaii than the reported cases indicate.
2. Here it is primarily a disease of young cane cutters.
3. Fifty-seven per cent of the patients in this series showed no jaundice.
4. The clinical picture is definite and should permit the diagnosis of the disease on a clinical basis alone.
5. The most reliable and most useful and practicable laboratory procedure is repeated blood serum agglutination tests.
6. Whole blood transfusions from convalescent patients is the treatment of choice.
7. The medical profession and industry in the Territory should cooperate in the development of a vaccine to be used in the immunization of field workers, and possibly the entire population, against Weil's disease.

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Bacillary Dysentery

WITH SPECIAL REFERENCE TO THE EPIDEMIC ON MAUI

W. B. PATTERSON, M.D.

Puunene, Maui

In the three years before 1944 only one case of bacillary dysentery developed in Puunene and Kahului—in a child who fell into an irrigation ditch into which sewage emptied. In the first four months of 1944 there were 89 proven cases from Puunene and Kahului and many times this number of unproven cases. Ten cases were reported in January from Puunene, and cases have since been reported from every part of Maui. In March alone we admitted 70 patients to Puunene Hospital with diarrhea, though only 37 of these could be proven to have bacillary dysentery.

The Board of Health records only 2 cases of bacillary dysentery for the Island of Maui in the last fiscal year, but 185 cases were reported in the first four months of 1944. All cases were of the Flexner group. Early in April the Board of Health declared bacillary dysentery to be epidemic on Maui and instituted a long-range program to combat it. This paper will discuss some of the important points of such a program, and bacillary dysentery in general, with special emphasis on treatment.

EPIDEMIOLOGY

Bacillary dysentery is widely distributed throughout the world but is more prevalent in tropical climates. In the United States the Flexner bacillus is responsible for most cases, though the Shiga bacillus is the cause of some. The epidemiology of dysentery is very similar to that of typhoid fever, though the bacillus is not as resistant as the typhoid bacillus. Sporadic cases occasionally occur. Epidemics are usually small and can usually be traced to a food-handler carrier. The disease can also be spread by flies and direct contact.

Both the healthy carrier and the ambulatory patient spread the disease. It has been reported that in New Orleans nine out of a hundred well individuals harbor the bacillus! The length of time after clinical recovery for which an untreated patient continues to excrete organisms in the stool is variable, and this is the most important thing to remember in trying to control an outbreak. Also the presence of the bacillus in stools of carriers tends to be intermittent, organisms being excreted one or two days in succession and not again for weeks, or longer. Oppen and Hale² reported an epidemic in 1939 from the Norwich State Hospital in which there were 38 cases, including carriers and patients. This was before the day of sulfonamide therapy and the patients were treated only

symptomatically. Stool cultures were taken on the patients until they became negative. They found that 57 per cent of their patients carried the bacillus in the stools for one month or longer. Thirty-one per cent of the group became persistent carriers, having the organism in the stool for more than three months. Two of the patients were still positive after two years.

These same authors reported a second outbreak of dysentery of 33 cases which occurred in the same dormitory two years later. The same organism was found. None of the patients of the previous epidemic came down with the infection the second time. This demonstrates that patients develop a specific immunity to dysentery. Antibodies can be demonstrated in the blood and can be used for diagnostic tests. If a patient has a seeming recurrence of dysentery he either has developed chronic dysentery or has become infected by another strain, there being several strains of Flexner variety. When a patient has dysentery for the first time he develops a certain degree of immunity which can be demonstrated by agglutination of specific live organisms with the patient's serum. The immunity is enough to overcome the acute infection but organisms may continue to live in the wall of the intestine. The titre of the patient's serum is usually low and only a few cases have been recorded as high as 1:1000. The Flexner bacillus is known to increase its virulence as it passes through different hosts and probably will increase its virulence in a single carrier. As the virulence of the organism increases in a convalescent carrier it finally gets strong enough to overcome what immunity the patient developed during the first attack. Now the patient may develop a second attack of acute dysentery to which he reacts by developing more immunity and a higher titre. Finally, the patient will develop enough immunity to destroy all organisms in his body, but by this time he may have developed chronic colitis from which he may never recover.

The incidence of dysentery always increases during war. This is due to the poor housing and poor sanitary conditions inevitably resulting from the mass shifting of the civilian population at such times. The U. S. Public Health Service reports that twice as many cases of dysentery were reported in the first half of 1943 as were reported during the same time in 1942. Troops stationed in tropical climates are apt to bring dysentery home and spread it.

When dysentery began to appear at Puunene and then all over the Island of Maui, the doctors and

Board of Health officials made a careful search to find its source. At first we visualized a carrier who was spreading it by water, milk or some widely used food. This did not prove to be the case. All the early cases had different water supplies which were either chlorinated or sandbed filtered, and the milk came from different dairies. Flies could not be blamed as the cases were miles apart. Upon questioning it was learned that almost all the early cases had attended one of three *luaus* (native feasts) held in January and all had attended the *luaus* about one week before becoming ill. The persons who had prepared the food for the *luaus* were checked and found to be dysentery carriers; some were even ambulatory patients. Persons had come to the *luaus* from all over the Island of Maui. We traced twelve cases occurring in small children and their mothers to a birthday party they had attended one week before. The person who had prepared the salad for this party was found to be a dysentery carrier and every person who had eaten the salad developed dysentery, with a positive stool culture. Just where these carriers picked up their infection we do not know. Some of them may have been carriers of long standing who had never before been food-handlers.

In February and March we began to get many cases but we could not always trace them to the source. Usually several members in a family had positive stools although only one—usually the baby—was sick with dysentery. Some of the others would give a history of some diarrhea one or two weeks before.

By March it was evident that there were numerous dysentery carriers scattered all over the Island of Maui and that we would continue to have many cases unless a drastic program of prevention was instituted. If three stool cultures could be taken of every person on Maui and the carriers thus found isolated until they were negative, we felt the spread of dysentery could be stopped. However such a program was impossible. Instead, Dr. Guy Schram, recently appointed County Health Officer, instituted a program of personal hygiene and sanitation which, in combination with the strict isolation of all cases until absolutely negative, should in the course of a few months rid the Island of Maui of most of the dysentery. All commercial food-handlers have been cultured and all have been found negative. These cultures, of course, should be repeated about once a month. Dr. Schram is personally conducting a survey of all public gathering places and all eating establishments on the island. The sanitary conditions of these places will be inspected and changes made where necessary. An educational program is being carried on in the newspapers, movies, etc., to educate everyone in personal hygiene. The importance of washing the hands with plenty of soap and water after going to the toilet, before eating, and before handling food for others, is being stressed. When everyone learns that dysentery is spread by dirty hands contaminating food and drink, control

should be easy. *Luau*s and parties have been forbidden except when held according to Board of Health regulations.

BACTERIOLOGY

The dysentery bacillus is morphologically similar to the typhoid bacillus except that it is nonmotile.³ The bacillus is short and occurs singly, in pairs, and in short chains. It is gram negative. Growth on culture media is the same as with the typhoid bacillus. Acid is formed in dextrose, maltose, raffinose, adonitol and dextrin. The Shiga bacillus does not ferment mannitol but the Flexner bacillus does. The bacillus is definitely identified by its agglutination with specific anti-serum.

PATHOLOGY

The lesion of bacillary dysentery is usually a superficial inflammation of the large intestine, worst in the sigmoid and rectum. In less than half of the cases the terminal ileum is involved. All gradations of severity occur, from simple inflammation to extensive necrosis. The toxin liberated by the bacillus produces a necrosis of the epithelium. The necrotic tissue forms a false membrane which sloughs away leaving shallow ulcers. The ulcers are seldom deep enough to cause perforation. The bowel wall often becomes greatly thickened and, in rare cases, gangrenous. In chronic dysentery, the wall may become fibrosed and stenotic. Other organs are seldom involved though specific liver abscesses and pyelonephritis have been observed. Dysentery bacilli are present in the early stage in the intestinal contents, in the flakes of mucus, in the ulcerated bowel wall and frequently in the mesenteric lymph glands. Dysentery bacilli have also been demonstrated in the blood stream, spleen, biliary system and kidneys.

SYMPTOMATOLOGY

All gradations of symptom severity occur regardless of the type of infecting organism. As a rule infections with the Shiga bacillus cause the most profound illness because of the powerful exo-toxin elaborated. Mild cases may only have loose stools for a day or so and never realize they are sick⁴. Other cases will have severe constitutional symptoms of general malaise, vomiting, high fever, abdominal cramps and muscle pains followed by bloody diarrhea and tenesmus. The stools may only be soft and watery but usually they contain pus, mucus and blood. As many as thirty stools may be passed in one day and may consist entirely of pus, mucus and blood. Often the constitutional symptoms are more severe than the diarrhea, especially in adults. These patients usually develop diarrhea within twenty-four hours, but I have seen a few who never did develop diarrhea. In this epidemic many patients with high fever and abdominal pain have had no diarrhea. Practically all patients, both

adults and children, are nauseated and many vomit. Temperature is usually elevated and about 25 per cent of our adult patients had a temperature of 101 F. or higher. The high temperature may continue for several days, until recovery or death occur. One case had a spiked temperature that reached 103 F. every day for two weeks. This case also had abdominal distention and a white blood count of 30,000.

The symptoms are usually more severe in infants and children because of the more serious effects of the toxemia and dehydration. Children may die within twenty-four hours. When vomiting and diarrhea are both present, fluids are not taken and dehydration and ketosis develop rapidly. These severely ill children become drowsy and often fall asleep while being talked to. The pulse is rapid and strong and almost too fast to count at first; later it becomes weak and thready. Rapid pulse and drowsiness in a child with diarrhea are danger signs and heroic measures must be instituted to prevent death. The temperature in these severely ill patients is usually elevated though it may be normal or sub-normal.

DIAGNOSIS

During an epidemic of bacillary dysentery all cases of diarrhea should be regarded as bacillary dysentery until proven otherwise. To actually prove that a patient has dysentery is sometimes very difficult. Likewise, to find dysentery carriers is often even more difficult. The stools of bacillary dysentery are very characteristic, consisting of sero-sanguinous pus with an albuminous odor. The stools of amebic dysentery, in contrast, are a foul smelling mixture of feces, blood and brownish jelly-like mucus. If daily stool cultures are made from the onset, dysentery bacilli can be found in about 50 per cent of the cases. The opportunity for isolating the organism diminishes rapidly after the first few days. By swabbing the ulcerated areas through a sigmoidoscope, bacilli can be cultured from 80 per cent of the cases⁴. Hardy and associates⁵ describe a rectal swab technique for obtaining stool cultures which has proved to be very helpful. It enables the laboratory to obtain cultures at its convenience and gives a far greater number of positive results. The rectal swab is taken through a rubber tube 12 cm. long, with an inside diameter of 0.5 cm., beveled at one end. A tightly wound cotton applicator is inserted into it; the tube is lubricated on the outside and inserted into the rectum. To collect the specimen the rubber tube is withdrawn 3 cm., exposing the swab, which is then rotated, swept around the wall of the rectum, withdrawn into the tube and removed with it. It is plated directly onto culture media.

At Puunene we had 89 proven cases of dysentery in four months. To diagnose these, 1,185 stool cultures were made, of which 201 were positive. In only about half the cases of diarrhea did we find the dysentery bacilli. Many stool cultures were taken from contacts of patients in an effort to find carriers. For every

proven case of dysentery we did more than 12 stool cultures.

Through the sigmoidoscope the bowel wall in bacillary dysentery is observed to be acutely inflamed with many shallow ulcers. In amebic dysentery the bowel wall appears normal except for the ulcers which are large and shallow and have an overhanging margin.

Specific agglutinins appear in the serum of patients recovering from dysentery and diagnosis can be established by using live organisms for agglutinations.

TREATMENT

Treatment is divided into two parts: treatment of the diarrhea and fluid loss, and sulfonamide therapy. The first thing in the treatment of dysentery is to estimate the patient's state of hydration as nearly as possible. To control the diarrhea I frequently used morphine when paregoric failed. I always give an initial cleansing saline enema on the assumption that it washes out the toxic contents of the large bowel, and gives the patient at the same time much needed fluid and sodium chloride. This is repeated daily until there is improvement. Infants who appear dehydrated and toxic, and particularly those who have been vomiting, I give normal saline by hypodermoclysis—10 cc. per pound if it is absorbed. This is repeated as necessary. If there is no improvement after twenty-four hours, and the child is severely ill, I give whole blood or blood plasma diluted with an equal volume of saline—10 cc. per pound. This is also repeated as necessary. I feel certain that the lives of two infants were saved with repeated doses of plasma, though in the usual case normal saline by hypodermoclysis is sufficient in the first day or two of illness. Patients suspected of having dysentery should not be given a laxative. Their intestines are already empty and a laxative will remove more fluid from them, thus increasing dehydration.

As a rule patients with dysentery were given a soft diet until they were symptom-free for three days. Infants under one year of age were given only boiled water for the first twenty-four hours.

The second part of the treatment—the administration of sulfonamide drugs—is really the more important as far as ultimate recovery is concerned. It is also important insofar as it cures the dysentery carrier, thus stopping the spread of an epidemic. The dysentery organism is very sensitive to the sulfonamide drugs, but, just as with all other types of infections treated with the sulfonamide drugs, not all cases will respond to any one sulfonamide. I have yet to treat a case with sulfonamide drugs that failed to become negative though I have had to use more than one drug in several patients.

One must keep in mind that the goal of treatment is to destroy every dysentery organism in the patient,

not just to control the diarrhea and get one or two negative stools. Dysentery is essentially a localized inflammation of the colon and not a bacteremia; however, the organisms do invade the wall of the colon and are usually found in the mesenteric lymph glands. If any form of treatment is to be successful it must destroy the organisms in the mesenteric lymph glands. In choosing a sulfonamide drug, therefore, one should choose one which is readily absorbed into the blood stream so it will reach these glands; and the least toxic drug should be selected.

Eisenoff and Goldstein⁶ report an outbreak of 50 dysentery cases in an orphanage which they treated with four sulfonamide drugs. They divided the cases into four approximately equal groups and gave each group a different drug. They had no failures in the group taking sulfadiazine but had 15 per cent failures in the groups taking sulfathiazole and sulfaguanidine. Succinylsulfathiazole failed in only 8 per cent of the cases treated. Clinically all their patients recovered. The failures did not show a positive stool until two weeks after therapy was stopped. This is a very significant finding and serves to illustrate that one or two negative stools obtained during or immediately after treatment are no proof against a patient becoming a carrier or developing chronic dysentery.

When I first began treating dysentery I used sulfaguanidine as recommended by many in the literature.⁷ In most of the cases improvement was rapid though the stools were slow to become negative. Then I treated two cases in which I could neither get negative stools nor control the diarrhea. These cases were children between two and three years of age with white blood counts of 20,000 and 30,000, high temperatures, distended abdomens and bloody diarrhea. They were given 3.0 grams per day for two weeks. They had to be given repeated hypodermoclyses of normal saline and each received two doses of blood plasma. Then I changed to succinylsulfathiazole in the same dosage. The temperature dropped from 103 F. to normal and the stools became negative after twenty-four hours of therapy, and remained negative for two months. Since these two cases I have had more than 10 per cent failures where sulfaguanidine was used.

Sulfaguanidine was first recommended on the theoretical ground of being relatively insoluble, therefore poorly absorbed. It was thought to be a safe drug in combatting infections in the lumen of the intestines. This feature of insolubility, however, allows the drug to pass through the intestines inert, in crystalline form. Nine-tenths of the drug ingested can usually be recovered from the stool in crystalline form, although there are some patients who absorb a large part of the sulfaguanidine. The reason for this is not known. However most patients with mucous colitis are known to absorb the drug. Smith et al⁸ reported 12 patients with dysentery treated with sulfaguanidine in the usual dosage. Three of these patients devel-

oped blood levels higher than 10 mg. per cent and one absorbed 16.6 mg. per cent. It would seem that sulfaguanidine is not a safe drug to use since its absorption is not predictable and large doses must be given to be effective. Also, since it is not always absorbed it does not always reach the mesenteric lymph glands which harbor dysentery organisms.

Succinylsulfathiazole⁹ has been used in dysentery with better results than have been obtained with sulfaguanidine. It is not absorbed as such and most of the drug is excreted in the stool. The succinyl radicle is slowly broken off in the intestine, freeing the sulfathiazole for both local action and absorption. In more than 100 reported cases the highest blood level obtained was 1.45 mg. per cent. It is administered in doses similar to those recommended for sulfaguanidine. It would seem then to be a relatively safe drug to use, particularly in patients who are not under close observation. I have used it in 15 cases, obtaining negative stools in all except one. Enough time has not elapsed to know whether there will be recurrences. As a rule it takes almost a week of therapy with succinylsulfathiazole to get negative stools.

Another feature in favor of succinylsulfathiazole is that no cases of drug fever or drug sensitivity following its use have been reported to date, so far as I can find. It has been used following the development of sensitivity to sulfaguanidine with no ill effects. Obviously it should not be used after sensitivity to sulfathiazole develops.

At the present time I am using sulfadiazine or sulfathiazole on all cases and so far have had no failures. Since I have only recently begun using these two drugs, I cannot be sure that there will not be recurrences. As a rule stools become negative earlier than with the use of sulfaguanidine and succinylsulfathiazole. I give about one grain per pound up to a maximum of 60 grains per day, for a minimum of five days. If the stool is still positive at the end of five days the drug is given two more days. If the stool is not negative by that time, another sulfonamide should be used. The stool cannot be considered negative until at least two negative cultures taken two days apart are obtained, and even this is no guarantee that organisms will not appear again in the stool.

CONCLUSIONS

In the treatment of dysentery a sulfonamide drug should be chosen that is readily absorbed and effective in preventing recurrences and development of the carrier state. From all information available, the sulfonamides are effective in obtaining these results, in the following order of choice: sulfadiazine, sulfathiazole, succinylsulfathiazole and sulfaguanidine.

SUMMARY

1. A large epidemic of bacillary dysentery, Flexner variety, is reported.

2. The spread of this epidemic has been traced to several carriers and convalescent cases who prepared food for four *luaus* and parties. The original source of infection of these food-handlers has not been traced.
3. Thirty per cent of untreated dysentery patients will excrete organisms in the stool for more than three months after clinical recovery.
4. Education of the public in strict personal hygiene and good sanitation is a help in controlling such an epidemic. Hand-washing with soap is stressed, and the necessity to isolate and treat positive cases.
5. Treatment consists of (1) Combatting the diarrhea and dehydration. The free use of narcotics, saline by hypodermoclysis, whole blood and blood plasma are recommended for this. (2) Specific treatment with the sulfonamide drugs is recommended in all cases, even suspicious ones. The sulfonamide drugs not only shorten the illness and save the lives of many patients but prevent the development of chronic dysentery and the carrier state. Because the dysentery organisms reach the mesenteric lymph glands, the more absorbable sulfonamide drugs should be used first. The order of effectiveness of the four sulfonamide drugs used in treating dysentery is as follows: (1) sulfadiazine, (2) sulfathiazole, (3) succinylsulfathiazole and (4) sulfaguandine.
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EDITORIALS

PENICILLIN

The Queen's Hospital has been designated as the central distributing center for penicillin for civilian use in the Territory of Hawaii. A total of 50 million units has been allotted for distribution for the first month. An order has been placed for penicillin through the War Production Board as of June 15. It is hoped the drug will soon be available for distribution. To those members of the Hawaii Territorial Medical Association on islands other than Oahu, the only information available at this time is to the effect that the program will be extended through regular channels of the medical association as soon as the policy for distribution has been established.

A circular giving the indications and contra-indications, mode of administration and dosage of penicillin recommended by the War Production Board has been circulated to all doctors in the Territory. If further copies are desired please contact the committee in charge of penicillin distribution for the Territory—Dr. Sumner Price, Chairman, Drs. Arnold, Sr., Judd and Phillips.

INTER-SOCIETY COMMUNICATIONS

Repeatedly the comment was made by representatives of the outside islands attending the annual meeting—"We are step-children; why are we not kept better informed?" Suggestions are in order. How?

How does the office in Honolulu keep informed of what the different islands are doing? Surely not by the wealth (?) of correspondence that comes in. We do, however, get a fair idea of what is occupying the attention of the component societies from the minutes of their meetings. These are coming in more or less regularly and are published under *County Society Notes* in the JOURNAL in the hope that they are universally read. If the officers, at least, of each county will read the Honolulu County reports, they can keep up with the trend here, but it must be remembered that many of the concerns of the Honolulu Society, as those of the other islands, are local problems, not many of them take on territorial-wide significance and ever come before the Territorial Association.

Whatever comes before the Council is always relayed to the Councillors on all islands in the form

of minutes, usually accompanied by an explanatory letter—and, to take care of the eventuality of the Councillor's being away or too busy, or negligent, duplicate copies are simultaneously dispatched to the President or Secretary of the component society. Because the material that reaches the Councillor or the officer is not a personally addressed and individually written letter should not detract from its importance. The memorandum form and multiple copy type of communication is used to assure promptness in getting the word to you and is necessary since we lack the office help to do a more personalized job.

SYPHILIS IN HAWAII

Five thousand unrecognized cases of syphilis probably exist in the Territory of Hawaii at the present time in persons between fifteen and fifty-five years of age!

This startling statement is a modest and conservative estimate, based on figures obtained in the recent serologic survey of food handlers conducted by the Board of Health. Nearly 11,000 food handlers, selected on the basis of occupation alone, have been subjected to the standard diagnostic Kahn test, and in those giving a positive reaction, to the Kolmer Wassermann as well. Of this group 317 persons, or 2.92 per cent, have been found to have positive serologic tests for syphilis. The proportion is slightly lower in urban (2.67 per cent) and much higher in rural (4.72 per cent) districts; roughly nine-tenths of the individuals are from urban Honolulu, however, so that the over-all percentage of positive reactors is slightly under 3 per cent.

The current population of the Territory is of course a military secret, like the times of the tides; in 1940, however, there were 250,000 persons in Hawaii between fifteen and fifty-five years of age, and it is highly probable that there are not less than 300,000 today. This would mean a total of roughly 9,000 syphilitic persons, if the proportion were the same throughout the population.

Many of these cases are already known, however, and under treatment. Of 150 seropositive food handlers questioned to date, 94 of them were not aware of their infection—slightly under two-thirds. Slightly under two-thirds of slightly under 9,000 persons is

roughly and in round numbers a total of 5,000 presently unrecognized cases of syphilis in the Territory of Hawaii today. It will be cheaper to treat them now than it will be after some of them have become candidates for admission to the Territorial Hospital at Kaneohe, or to the Territorial School for the Blind.

SULFADIAZINE FOR EARLY BUBONIC PLAGUE

Hawaii's old friend Dr. N. E. Wayson recently reported¹ the successful treatment of early bubonic plague in guinea pigs by oral administration of sulfadiazine. He suggests that the similarity between the evolution and the manifestations of the disease in these animals and the same disease in man indicates that sulfadiazine may be effective in human cases. Possibly the reported failures have been due in some instances to the fact that treatment was not begun early enough. The experimental animals were treated as soon as buboes and fever developed.

The work was undertaken on the premise that there was no consensus regarding the efficacy of sulfonamides against *Pasteurella pestis*, and because the growth of this organism had been found to be inhibited on blood agar plates made from human blood containing 1.1 mg. of sulfonamide (sulfadiazine?) per hundred cc.

One group of fifteen animals was inoculated intradermally and treated; in these there were only two deaths and one of these was due to sulfadiazine crystalluria. None of the thirteen animals that recovered showed evidence of plague at necropsy a few weeks later. All of the thirteen control animals died of plague.

The animals in the other group were inoculated by the bites of infected fleas. Eleven of these were treated with sulfadiazine, and only four died of the disease; the seven that recovered showed no evidence of plague at subsequent necropsy. The nine untreated controls in this group all died of plague.

It should perhaps be re-emphasized that in all these successful experiments treatment was begun early, in the bubo stage, before septicemia had become established.

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THE EMIC PROGRAM

The best of medical care is vouchsafed wives and children of members of the armed services by the medical profession of Hawaii in a statement of policy regarding the Emergency Maternal and Infant Care program adopted by the Council and concurred in by the House of Delegates of the Hawaii Territorial Medical Association.

But the doctors' willingness to carry out the intent of Congress in furnishing this care does not imply approval of the methods and policies of the Children's

Bureau of the U. S. Department of Labor in setting up and administering the program.

The Territorial Medical Association's policy is expressed in the following paragraphs:

Statement of Policy

1. The Council of the Hawaii Territorial Medical Association approves of the principle of government aid in providing medical care for the wives and children of men of the armed services during the period of the present national emergency.
2. The Council recognizes the medical profession's responsibility for guaranteeing that such care shall be readily available, and that its quality shall be the best.
3. The Council recognizes the fact that while the EMIC program and its funds are available for obstetric and pediatric care and for the care of intercurrent conditions arising during pregnancy, no government relief or aid is similarly provided for other types of illness to which the wives and children of service men may fall victim; and believes that, in view of this fact, the medical profession should pledge itself to give every possible consideration to members of service men's families who may incur illnesses neither obstetrical nor pediatric in nature.
4. The Council emphasizes that physicians' disapproval of details of the EMIC program, the methods of its promoters, and its implications for the future of medical practice must in no way stand in the way of or tend to interfere with service men's dependents receiving the care and attention to which congressional action entitles them.
5. The Council believes that a program embodying certain features of EMIC may result in impairment of the quality of obstetrical and pediatric care and a deterioration of standards in those fields; but the Council also believes that such a threat to the quality of service should be an incentive to organized medicine and individual physicians to do everything in their power to prevent such impairment and deterioration, even though this may involve personal sacrifice and, for the duration of the emergency, at least, the furnishing of services for inadequate or no remuneration.
6. The Council favors the fullest cooperation between the medical profession of Hawaii and the Territorial Board of Health in the endeavor to make services under EMIC available under circumstances and conditions which will insure their high quality and will maintain and improve the standards of medical practice in the community.
7. The Council offers to the Board of Health of the Territory the services of a committee of physicians of the Territorial Medical Association, to assist the Bureau of Maternal and Infant Welfare in accomplishing the expressed purpose of the EMIC program, and to cooperate with the public health officials in protecting and improving obstetrical and pediatric standards in the community, and resisting forces and influences which threaten the quality of care in these fields.
8. The Council believes that the EMIC program will offer an excellent opportunity to study at close range the workings of state medicine as applied to obstetrics and pediatrics; that every physician should study the EMIC program in all its details and implications and that the territorial and county medical societies should devote much effort to enlightening their members in regard to matters pro and con relating thereto.

There is plenty in these paragraphs to occupy the doctors' attention for the moment. It is wise not to confuse the issue by dwelling upon the peculiar ideologies and dictatorial attitude of the Children's Bureau. That can wait—a matter of unfinished business not to be forgotten.

CLINICO-PATHOLOGICAL COMMENT

TRANSFUSION REACTIONS

The Honolulu Peacetime Blood and Plasma Bank, under the directorship of Dr. F. J. Pinkerton, has rendered the doctors and the community an appreciated and valuable service.

It has recently been suggested that four out of five transfusion reactions result from faulty technique on the part of the Bank. It seems wiser to say that the better the technique the fewer the reactions. Over an extended period, operation of the blood bank has undoubtedly led to improved technique as the teams became more experienced, and as the group concentrated on the probable causes of transfusion reactions. Experience, combined with intelligence, has reduced the reactions from banked blood to about 3 per cent. This remarkable reduction is in line with observations made by myself and others that as an operator, or group, becomes experienced and technical errors are eliminated, there is a fall in the number of reactions following transfusion.

Although the point has not been stressed, I believe that the percentage of reactions to bank blood varies directly with the degree of the blood collector's experience on the one hand, and the experience of the actual operators or administrators on the other. One controlled group of operators using careful and standardized technique and doing a large number of transfusions will have fewer reactions than another larger group of operators performing a small number of transfusions per individual. The trend on the mainland is toward the organization of transfusion teams working by more or less standardized technique. It seems that the local blood bank has gone about as far as it can in reducing the number of reactions unless the physicians and hospitals recognize the need for a process of standardization, and perhaps a continuous program of education. While not practical at the moment it may be worthy of consideration to have all transfusions supervised. If it had the personnel this could be done by the blood bank, or it could be done by the hospitals in cooperation with the bank through the organization of a team for each hospital.

Citrate transfusion has made the blood bank possible, and the blood bank has made transfusion a very minor operative procedure, almost a routine in certain types of cases. With the simplification of technique, ready availability and wide use of blood, has

come a certain disregard for the importance of transfusion—not for the need of transfusion, but for its technique. A great laxness has become evident which would not have been tolerated a few years ago. Anyone who can insert a needle in a vein can do a transfusion nowadays, with no regard for his ability to do it well and without hazard to the patient.

The Blood Bank has for practical purposes, assumed responsibility for the reactions, while the final operator seems to have assumed little or no responsibility. This attitude is not conducive to best results.

The technique and procedure of transfusion in the average case involve a minimum of six individuals or agencies: the donor, the collector (who is represented by either the Blood Bank, or by the physician himself when fresh blood is used), the laboratory, the operating room or ward nurse and her associates, the operator or administrator, and the recipient. Any study of transfusion reactions which takes into consideration only the agencies of the blood bank and the recipient is inadequate. If the physician feels that the percentage of transfusion reactions should be reduced further, let him look to some of the other agencies involved.

The Donor

Some years ago, I drew attention to the blood donor's diet preceding transfusion as one of the most common causes of blood transfusion reaction. The original conclusions were in error, but I still believe that the donor's pretransfusion diet is an important factor in or causing certain types of reaction, albeit there are other more important errors in technique. The fewer errors in technique, the fewer are the reactions.

The donor should refrain from eating a heavy meal for four or five hours prior to donating blood. On the other hand, it is not wise to have him go without any food for a prolonged period as it may make him weak. A pretransfusion diet of orange juice was once recommended, but the results were not what had been anticipated. I know of no pretransfusion diet which can be recommended.

Donors who have good sized veins and bleed freely are most desirable. Delay in handling the blood is indirectly conducive to reaction. This will be amplified later.

Preferably the donor should not be unduly fatigued; he should be healthy, free of colds or other evident

infections; he should have at least a superficial examination to determine the absence of any primary lesion of syphilis; and his hemoglobin prior to transfusion should not be less than 85 per cent of normal standards. These are factors which the bleeding agency, the physician, or laboratory should determine in advance.

The Collector

If the tourniquet is placed too tightly on the arm there is slowing of the stream, cyanosis, and reduction in clotting time. Every physician knows that these are factors conducive to thrombosis—the ultimate breakdown in the blood elements. Thrombosis occurs in the donor only rarely, but there may be a partial breakdown in the blood. Excessive trauma, multiple punctures with poorly chosen needles which lacerate the vein instead of cutting it, add further insult. Most experienced operators know that where this type of difficulty is encountered a higher incidence of reactions results. The choice of too small a needle, or one with too long a bevel, is apt to induce mechanical difficulties. While delay in handling the blood is to be avoided, it is my opinion that too rapid withdrawal of blood from the donor is definitely the cause of many blood transfusion reactions. Too rapid withdrawal of blood, especially with a poorly chosen needle, often causes the vein to collapse. This collapse, under maintained suction, may be felt as a flickering or flapping of the vein against the needle orifice. Such trauma to the interior of the vein liberates ferments which may make the donor ill and cause his blood pressure to fall; if continued, it may produce nausea, vomiting, fainting, and even convulsions if carried to an extreme limit. It is true that when the blood is added to the citrate, the latter arrests the partial breakdown of the blood, however, if the unnecessary trauma to the donor's vein and the too rapid withdrawal of blood are avoided, the number of reactions in the recipient will also be reduced.

The collector should steadily agitate the blood as it is added to the citrate so as to get a thorough mixture. This does not require violent shaking or agitation, but a constant rotation in a relatively wide arc at a relatively slow rate. The average beginner gets in lots of motion and agitation, and, most often, gets clots because he does not get a thorough mixture. He has motion, but not coordination.

The stirring rod is now seldom used, but a rod or tube which extends to the bottom of a collecting flask is equally objectionable and unnecessary. It tends to act as a defibrinator, and fibrin dregs are nearly always found in such a collecting container. Of course a good filter will remove these dregs, but too often the filters are not used.

The collector is responsible for maintaining the sterility of the specimen, for collecting samples for serologic tests, for proper sealing of specimens, and

for refrigeration when required.

The Laboratory

Errors in typing do occur, especially when hastily done; but when reactions ensue from improper matching they are apt to be severe, and they may be hemolytic. The many errors which occurred in the typings at the early stages of induction, were largely the fault of haste and newness of a relatively inexperienced staff, most of whom had never done typing or laboratory work before, and often did not know what blood typing was all about. The amazing thing is not that so many errors occurred, but that they were so few. The army needed speed and so it sacrificed a certain degree of accuracy with the knowledge that these would be checked later by direct matching if transfusion became necessary.

Actually the reactions due to improper matching are very few. If reactions due to incompatibility were very common the director of laboratories would be in difficulty indeed.

One of the most common technical errors observed in the laboratory is the inadequate mixture of the donor's cells and the patient's serum. The more the mixture is shaken the greater becomes the evidence of incompatibility. The novice has a tendency to give the mixture a stir or two, set it aside for a while, and then read the results. A minimum of twenty minutes is essential and longer is desirable, for passing on the compatibility of a matching. During this interval there should be frequent shaking, a mechanical Kline or other type of rotating platform is of definite advantage.

A number of years ago the iso-hemolysins received considerable attention in blood typing. These seldom occurred except in the presence of the iso-agglutinins, so that they were gradually ignored. Only about once in a thousand transfusions will a donor be found whose cells are hemolyzed by the patient's serum in the absence of agglutination. It is wise, however, for the technician to be on the alert for evidence of hemolysis. If a moderately heavy suspension of cells is used, and if the relative number of red cells and their appearance are kept in mind, then any undue swelling of the red cells should suggest fragility and the possibility of hemolysis. Actual hemolysis may occasionally be observed, and the donor in that case should be discarded as incompatible. Careful observations of this sort can prevent a certain number of hemolytic reactions.

Whether this hemolytic trend, encountered on occasion, is related to the Rh factor, I am not prepared to say, but I feel that it is important to observe a compatibility test for evidence of hemolysis.

While on the subject of the Rh factor, attention might be called to the request for Rh negative donors for Rh positive patients. To the best of my knowledge no evidence is advanced that such a requirement

is necessary. The Rh factor is of greatest importance in multiple transfusions, in obstetric cases, and specifically in *Rh negative recipients* who have previously received Rh positive blood and have built up "antibodies" or "immunity" against such blood. Rh positive recipients have nothing to worry about in this connection.

The Operating Room

It does not seem necessary to stress the importance of sterile equipment for the administration of blood. The factor of having clean apparatus is highly susceptible to technical error. Before a piece of apparatus is returned for re-sterilization it is important that it be subjected to prolonged soaking in water, thorough rinsing, and careful cleaning. It is the responsibility of the operating room that all banked blood apparatus be provided with filters, it being unsafe to administer banked blood without adequate filter. These filters require special attention in the way of proper cleaning. Fresh batches of tubing should be thoroughly boiled, usually in alkali, prior to use. The operating room usually provides the solutions, if any, used in conjunction with the blood; the type of solution is usually determined by the operator. The responsibility of the operating room nurse ends when she supplies on request the proper tonic solution.

The Operator

One of the most common sources of technical error is the general use of saline to fill the tubing prior to starting the transfusion. It is not the use of saline that is bad, it is the damage arising out of misunderstanding of its purpose that causes anxiety and reflects on the training of the transfusion team.

The chief purpose of flushing the tubing is to assure the operator that the tubing is clean, and to assist in eliminating air bubbles from the apparatus. On occasion it may be desirable to dilute the blood with saline, but on other occasions it may be desirable to omit the addition of any salts. Definite prejudice against the use of saline exists in cases already showing edema, and in known nephritics with or without nitrogenous retention. Whether or not the prejudice is justified, there seems to be a prevailing opinion that something must be put in the tubing before the blood is run in. At least on several occasions distilled water has been used instead of saline.

A small amount of distilled water, administered slowly by vein, will not materially upset the average patient, and, on occasion, may be a therapeutic measure of merit, but it is a procedure which needs close supervision. When distilled water is used in the tubing, then overlaid with blood, there is at best a narrow zone of hemolysis at the juncture. This small amount of hemolysis in itself still may not harm the average patient, but if it is extensive the patient's kidneys will certainly be harmed far more than by a small amount of saline. In one instance at least 200 cc. of distilled water were used with the blood transfused. The appearance of hemolysis was grossly evident at the time of administration. The technique was questioned but the orders were found "correct" as

written. It would seem offhand, that a transfusion team more adequately instructed in transfusions is in order if such incidents are to be avoided. I am not critical of the individuals concerned, but the *laissez faire* attitude that "anybody can do a transfusion" will lead to more errors of this sort.

There is really no need to add saline, where a prejudice against its use exists, and certainly there is little need to substitute distilled water. Why cannot a column of blood itself be used to fill the tubing? An average amount of careful maneuvering, raising the needle level above the blood reservoir, followed by gradual lowering of the column, will force the air out of the apparatus. A small additional waste receptacle, or the original container, will catch the small amount of spillage, which is seldom over a few cubic centimeters. In most instances a sterile sponge is adequate. A few elementary instructions of this kind may go a long way to overcome some of the unnecessary technical errors and still allow the operator his prejudices. It might be advisable to know the chloride level, even in cases with edema, before getting too excited about the addition of a small amount of saline solution.

The Patient

With the introduction of treated "O" blood there has been a transient trend on certain services toward using "O" blood to the exclusion of other types. Thus an old cycle has been started again but from a slightly different angle. I have never had any prejudice against the use of "O" blood, but some have encountered an undue number of reactions which they attributed to a high titre of agglutinins in the "O" bloods. There is reason to believe that a small amount of truth rests in this conclusion, but it is also possible that some false interpretations may have been made. Now that "O" blood may be treated with anti-a and anti-b substance it is theoretically safer for emergency use. But, if "O" blood is asked for on each case there will not be enough "O" donors to go around. It is anticipated that the cycle will again be complete when it is found that treated "O" blood is no panacea for transfusion reactions. Treated "O" blood at the moment should be reserved for the emergency case where there is not time for typing, or where delay may endanger life. In other cases it still seems advisable to type the patient and use his type of blood insofar as it is practical to do so.

With the use of sulfa drugs there seems to be less use of multiple small transfusions for the treatment of acute and subacute infection than there should be.

Summary

1. It is believed that the most common causes of blood transfusion reactions lie within the realm of preventable technical error, in which the operator should not be excused from his share of responsibility.
2. Closer supervision of the operator's part in blood transfusion, with greater standardization and supervision, seems to be indicated.

A. SUMNER PRICE, M.D.

PENICILLIN-C.S.C.



and its Quarter-Century Background

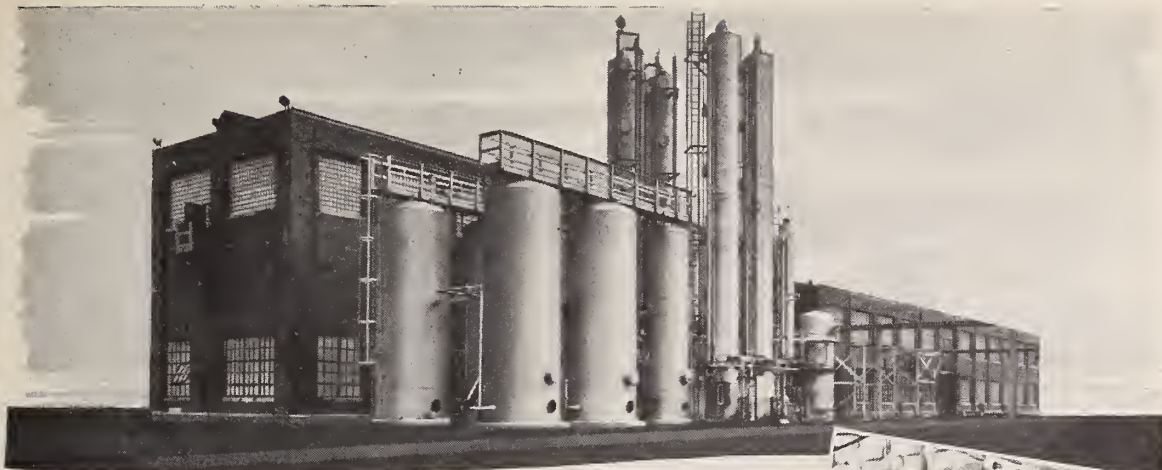
Ehrlich's prophetic vision of the "magic bullet" which would combine deadly efficacy against pathogenic bacteria with perfect compatibility in the human organism, approaches fulfillment in penicillin. Contrary to Ehrlich's expectation, this magic bullet is not a synthetic drug developed by a chemist—it results from the metabolism of a mold. Biologic production of a chemotherapeutic agent thus is now applied in the pharmaceutical field, a new approach.

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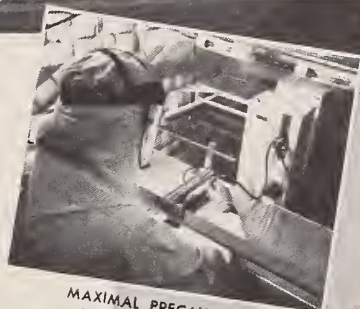
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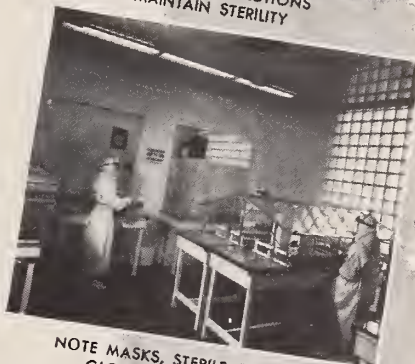
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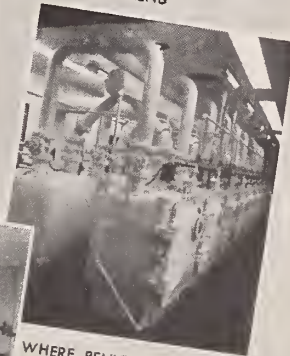
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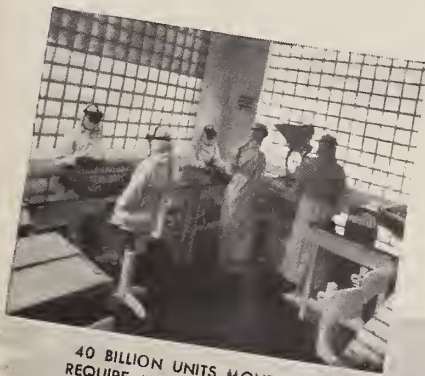
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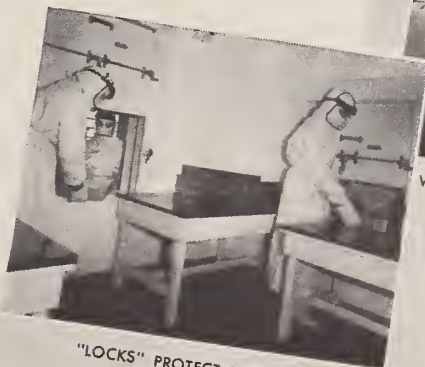
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** Laryngoscope, Feb. 1935, Vol XLV, No. 2, 149-154*

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NEUROPSYCHIATRIC COMMENT

MODES OF ADMISSION OR COMMITMENT TO THE TERRITORIAL HOSPITAL

Early in 1938, the Medical Director of the Territorial Hospital, acting upon the recommendations of Dr. F. G. Ebaugh, prepared a draft of proposed legislation for admission to the Territorial Hospital, and submitted same to the Territorial Commissioner of Public Health, the late Dr. Frederick E. Trotter. This material was later studied by the Health Committee of the Chamber of Commerce of Honolulu. After this group of physicians, lawyers and other interested persons had made certain changes, the proposed plan for admissions was modified accordingly and submitted to the legislature of 1939. The completed legislation, ultimately incorporated in the act governing the Department of Institutions, represented a distinct advance in the management of individuals requiring institutional treatment.

Today admission to the Territorial Hospital may be had by:

- (a) voluntary application
- (b) regular court commitment
- (c) the certificate of one physician, and
- (d) emergency admission on incomplete court commitment.

The required forms covering these modes of admission were prescribed by the Director of Institutions and, upon the recommendation of the Attorney General, were approved by the Governor. These forms were made available to all courts, physicians, and social agencies within the Territory.

The application for voluntary admission applies to the mentally ill as well as to alcoholics and drug addicts. It consists of a single one-page letter addressed to the Medical Director requesting admission on a voluntary basis. The applicant agrees to obey all rules and regulations prescribed for the governing of the hospital and promises not to leave the hospital without having previously given at least fifteen days' notice in writing. This mode of admission is reserved for rational persons who understand the nature of the hospital and against whom no criminal charge is pending. Approximately 10 per cent of admissions are on a voluntary basis.

The regular court commitment requires:

(a) The petition. This may be made by any adult friend, relative, guardian, or any public officer, and must be notarized. It contains a plain statement of

the facts and reasons why the person should be committed to a hospital for the mentally ill.

(b) The certificate. This consists of two parts, (a) the history obtained by the physician, and (b) report of the examination. The certificate must be made by one or more physicians who have been in the actual practice of their profession for at least two years. The certificate must state the facts and circumstances upon which the judgment of the physician is based and show that the condition of the person is such that treatment is necessary. If the physician believes that personal service on the patient would be ineffective or detrimental, he may so state in the certificate. The court in its discretion may then dispense with personal service. The majority of patients now committed are not required to appear in court. However, as a general rule, paranoid individuals should have a hearing; otherwise they become a source of considerable trouble after reaching the hospital.

The petition and certificate must be presented to the district magistrate of the district where the person resides or the circuit judge of the circuit in which the district is situated. The patient, if he is not confined on a criminal charge, may be committed to the Territorial Hospital or a licensed private institution or, if harmless, to the custody of relatives or guardians of his person.

The certificate of one physician requires

- (a) a petition, and
- (b) certificate of one qualified physician.

These are provided in a form prescribed by the Director of Institutions but the petition is addressed to the Medical Director instead of the court. A patient may be received at the hospital under this provision of the law without going through the formality of court proceedings. It is essential that the person does not object to entering the hospital. As in the regular court commitment, this method also requires a verified application and the certificate of a duly licensed physician who has been in the actual practice of his profession for at least two years. A patient so admitted may remain at the hospital indefinitely, provided he is willing to remain. However, if he or a relative or friend makes written request for discharge, the patient cannot be detained longer than thirty days.

The petitioner and attending physician should always confer with the medical director or physician in charge before sending the patient to the hospital.

If a patient is in need of treatment for a mental

disease but objects to entering the hospital voluntarily or on a physician's certificate, he should be regularly committed by a court under the provision of Section 1236, Act 203, Session Laws of Hawaii, 1939 (regular court commitment).

A patient may be admitted to the hospital in an emergency upon the form used for regular court commitment which is good for a period not exceeding ten days. This method of admission requires only a verified petition and a certificate of two physicians who have been engaged in the actual practice of their profession for at least two years. The certificate executed by such qualified physicians must contain adequate reasons why the insane person should be immediately received in the hospital or institution for treatment. The medical director or the person in charge of a private institution may refuse to admit such an alleged insane person on this form if, in his judgment, the reasons stated in the certificate are not

sufficient or the condition of the patient is not of such character as to constitute an emergency.

This mode of admission is useful when the courts are not in session on Sundays and holidays, but it should be reserved for the dangerously insane and when no other means of management is available. It should be noted that the certificate must be completed by two physicians. The petition is addressed to the Medical Director instead of the court. Experience has shown that only rarely is it necessary to use this means of admission to the hospital.

It is gratifying to report that the liberal provisions of existing laws have been used with the utmost judiciousness by physicians and courts since their enactment in 1939. Many communities still subject the mentally ill to numerous embarrassments and even humiliation. The citizens of the Territory can be very well satisfied with the humanitarianism embodied in the present statutes.

E. A. STEPHENS, M.D.
Director, Territorial Hospital



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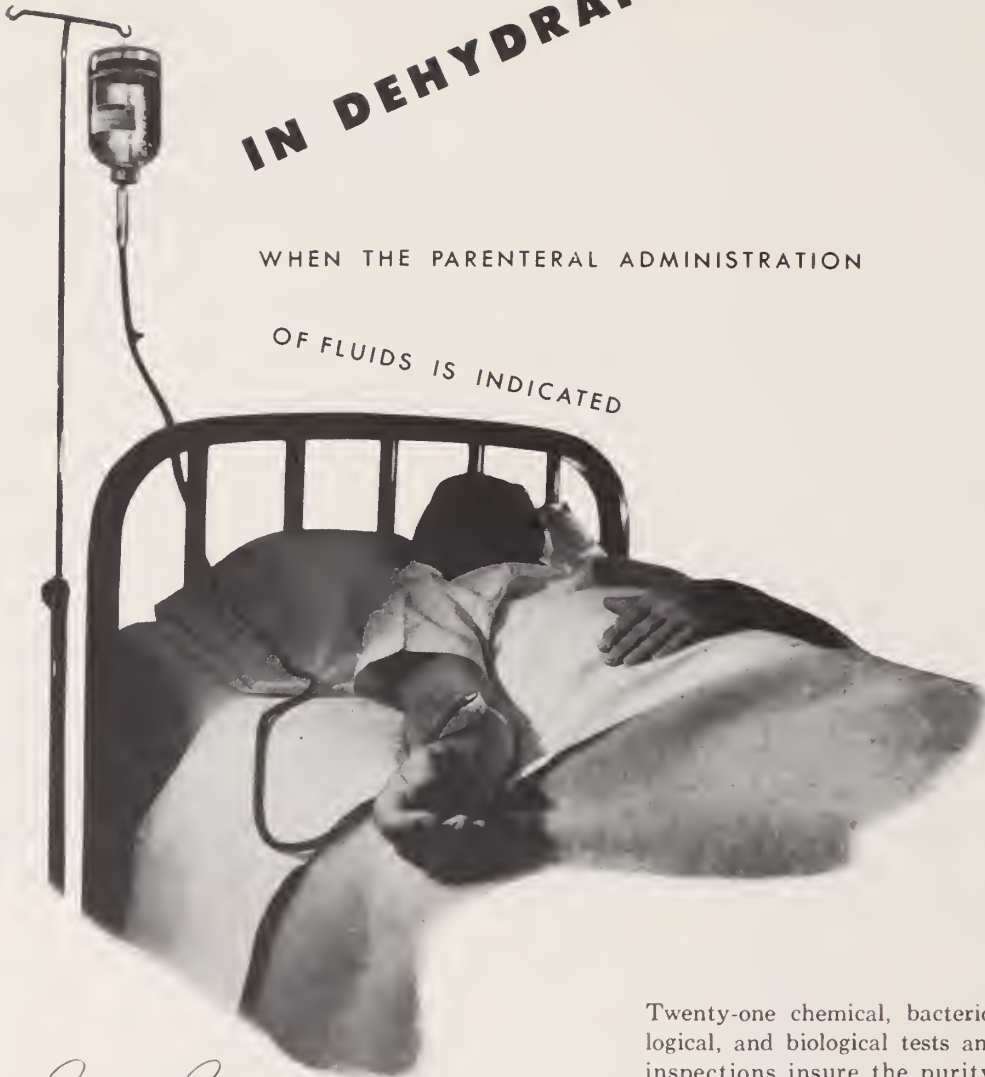
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HOSPITAL NEEDS

WAIMANO HOME

Waimano Home was established in 1920 as an institution for the care of feeble-minded and epileptic persons. The Legislative Act for the creation of Waimano Home established it on the "farm colony" plan and set aside for that institution 612 acres of land three miles mauka of Pearl City, Oahu. The initial appropriation was \$82,000.00 and provision was made for a superintendent's home, dormitories for male patients, dormitories for female patients, a central kitchen, laundry and boiler house. The appropriation also provided for roadways, parking areas, walks, a water system, and a sewage system. The original plant was designed for 100 patients.

On March 27, 1921, the institution was formally opened with the admission of the first patient. The following table will show the development of the institution from 1921 to the present date.

*Patients' and Employees' Population of Waimano Home
From 1921-1944 Inclusive*

YEAR	POPULATION IN-PATIENT	ON PAROLE	TOTAL ENROLLMENT	TERRITORIAL POPULATION	RATIO OF PATIENTS TO POPULATION	NUMBER OF EMPLOYEES
1921.....	45	15	60	275,884	1-6,130	2
1924.....	108	22	130	307,100	1-2,362	2
1928.....	161	49	210	328,767	1-1,565	30
1932.....	200	37	237	380,507	1-1,605	36
1936.....	289	68	357	393,277	1-1,101	58
1940.....	351	64	415	426,654	1-1,028	65
1944.....	413	67	480	485,000	1-1,010	94

From time to time, buildings have been added in order to provide for an ever increasing population. Statistically, it would appear that feeble-mindedness has increased from a ratio of 1 to 6,000 to a ratio of 1 to 1,000. We are, however, fully aware of the fact that this is not true. According to the California standard, approximately 3 out of 1,000 are classified as feeble-minded. Many feeble-minded, however, are not institutionalized. It is not necessary that all cases be institutionalized. In fact, institutionalization would be a grave mistake for a considerable number. Many feeble-minded are able to adjust socially and do not, therefore, constitute a serious problem in their respective communities. The increase in the total number of feeble-minded who are institutionalized is brought about by a greater community demand for protection and for the relief of homes burdened by the care of feeble-minded persons. It is also true that diagnostic facilities have been greatly improved.

There is now a tremendous demand for additional

facilities at Waimano Home. This demand has been created by the fact that a feeble-minded person ties down some adult member of his family. The urgent need for employees and the high current wages paid have in many cases, prompted families to request institutional care for their feeble-minded members in order that all adults may seek employment. The demand for increased institutionalization also comes from all parts of the Territory because, in many cases, both parents of a feeble-minded child have sought employment without providing adequately for his care, thus leaving him free to roam at large in the community. The following table has been compiled from the reports of social agencies in regard to cases pending admission throughout the Territory.

Cases Pending Admission

	URGENT	NOT URGENT	TOTAL
Cases committed	57	51	108
Cases not yet committed.....	60	132	192
Totals	117	183	300

Urgency is governed by two factors:

1. Paralytics, epileptics and idiots which require twenty-four-hour supervision on the part of some member of the family.
2. Cases who are unable to adjust socially and who have no standard of morals or ethical behavior.

In spite of urgency, the courts have ceased making commitments because of the futility of so doing when there is no room for new patients at Waimano.

The feeble-minded who are wholly without standards of conduct represent a community problem the seriousness of which is understood by but few people. If this problem were fully appraised, there would be an even greater community demand for institutionalization. Many of the feeble-minded are unaware of the consequence of their acts. Therefore, they exhibit modes of behavior and an absolute lack of inhibitions which make their association with normal children highly undesirable. With most of the feeble-minded, any urge represents only something to be satisfied. Consequences are unimportant.

The courts seldom make commitments among the borderline feeble-minded unless feeble-mindedness is associated with other conditions detrimental to society. The borderline feeble-minded at Waimano are therefore both feeble-minded and seriously delinquent, making it imperative that they be institutionalized in order that normal children may be protected from

their harmful influences. More of this type must be accommodated at Waimano.

The War brought an end to the proposed expansion of facilities at Waimano Home but, fortunately, the Office of Civilian Defense has built a large evacuation center on the grounds of the institution. These evacuation buildings have now been transferred to Waimano for the purpose of housing feebleminded patients and are to remain under the control of Waimano unless a large scale evacuation should appear imminent. Plans and specifications have now been completed for the alteration of these buildings in order to make them suitable for housing feebleminded patients. Space in the buildings will provide for two hundred additional patients. It is hoped that these buildings will be ready for occupancy within three or four months.

The OCD buildings at Waimano, one of which will be converted into a 100-bed hospital, are all of wood. The fire hazards in wood frame buildings certainly make those responsible for the conduct of Waimano Home hesitant to use such building as a hospital for paralytics, epileptics and idiots. In the event of fire, it would probably be impossible for the attendants to remove all such patients from the building. For the better grade feebleminded and other ambulatory patients, wooden buildings would not present so great a risk. It is, therefore, to be hoped that a modern fire-proof hospital building will be built for Waimano as soon after the War as conditions permit.

The present hospital building is a small outmoded wood frame building with facilities for 30 patients. Many more than that should be in the hospital. With the admission of 200 additional patients, it is expected that the need for hospitalization will require 80 beds. Since the prospective number of new cases soon to be admitted is considerably less than the total number of cases pending admission, it seems reasonable to assume that Waimano will get a disproportionately heavy number of cases requiring permanent hospitalization.

To the fullest extent possible with the facilities available, Dr. Edward T. Ching, Hospital Physician, is providing excellent medical care and hospitalization for the patients of Waimano Home.

Waimano patients are classified as follows:

Classification			
TYPE	CLASSIFICATION	PERCENTAGE	TOTAL
I	Morons	9	43
II	Imbeciles	70	336
III	Idiots	21	101
Totals		100	480

The following table shows the population of Waimano Home as of May 15, 1944:

Patient Population			
	MALE	FEMALE	TOTAL
Institution Population	190	223	413
On Home Leave	2	1	3
On Escape	1	.....	1
On Parole in Territory.....	20	37	57
On Parole to Midway.....	6	.....	6
Total Enrollment	219	261	480
Average age	23	27	

Under the aggressive direction of Mr. Charles B. Lambert, Superintendent of Waimano Home, self-supporting patient activities have been expanded tremendously. Patients have been paroled into self-supporting activities throughout the Territory and many of the parolees are now defense workers in the high income brackets. One parolee paid a federal income tax of \$523.02 for the year 1943. The training program developed by the Superintendent of Waimano Home is very extensive, giving to patients both academic and trade training to the fullest extent of their ability. Activities aimed at self-support within the Home have also been greatly expanded. The following table will give the reader a good concept of ambulatory patient activities on the Waimano farm.

Farm Produce for the Twelve-Month Period Ended April 30, 1944 Consumed and/or Sold

Vegetables		357,193 lbs.
Consumed	149,193 lbs.	
Sold	208,000 lbs.	
Beef produced and consumed.....		2,343 lbs.
Milk produced and consumed.....		14,329 gals.
Eggs produced and consumed.....		4,589 doz.
Poultry produced and consumed.....		7,938 lbs.
Pork produced and consumed.....		6,084 lbs.
Fruits produced and consumed.....		25,015 lbs.

A typical example of vegetable production and sale for the past twelve months is as follows:

Aiea Naval Hospital Aiea Heights, Aiea, Oahu	
484 lbs. of string beans	\$ 58.08
4,520 lbs. of lettuce	718.34
1,210 lbs. of turnips	54.45
1,531 lbs. of chinese cabbage	107.15
8,019 lbs. of head cabbage	400.94
64,057 lbs. of rose potatoes	2,882.59
79,821 lbs.	\$4,221.55

Mr. Lambert could entertain you with interesting stories in regard to the problem of farm production carried on with feebleminded labor. Obviously, such work requires the most careful supervision and, even with close supervision, the patient worker is just about as likely to pull the vegetables and leave the weeds as he is to pull the weeds and leave the vegetables. Thinning also requires close care and supervision. The feebleminded can see no reason why corn should not be planted three inches apart and carrot three feet apart. Only a short time ago, observation showed that all the young sweet potato plants had died in certain portions of various rows. Subsequent observation of the patient workers showed that one patient found it easier to pull up the young sweet potato vines while weeding and then stick them back in the

ground after the weeding operation had been completed.

In the craft shop one can also find unique operations. A girl may start to embroider a daisy on a luncheon set and when half way through decide to change it over to a mynah bird. In spite of all these difficulties, the vigilance of Mr. Lambert and his staff have established a standard of production and craft work that one would not believe possible in a feeble-minded home. Any one visiting Waimano would be not only interested but amazed at the high quality of the program developed there. Needless to say, an ex-

tensive program of recreation, work and special activities provides a busy life for the patients, gives them tremendous satisfactions, keep them happy and prevents sadistic and other delinquent practices.

You will be cordially received as a visitor there and your visit would give you a far better concept than can be conveyed in this article of Waimano's program, its problems and its developmental requirements.

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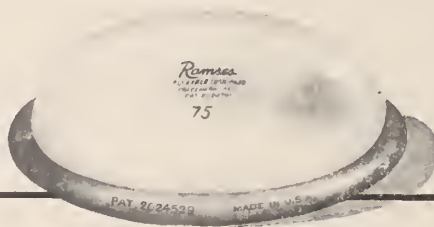
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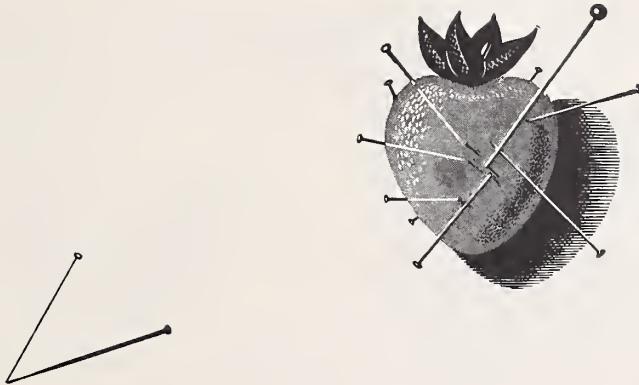
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**Meyer, E., and Arnold, L., (1938), Amer. J. Digest. Dis., 5:418.*

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EMERGENCY MEDICAL SERVICES

Report and review of the year's activities of the Emergency Medical Service of the O.C.D. given at the annual meeting of the Honolulu County Medical Society, April, 1944.

Maximum medical protection for the civilian population of the Territory of Hawaii has been provided by the Emergency Medical Service of the O.C.D. since the blitz of December 7, 1941. A program of expansion of civilian hospitals and the erection of several emergency hospitals on the various islands of the group has been completed. This report covers the activities of the E.M.S. during the past fiscal year ending April 7, 1944 which marks the third anniversary of the Preparedness Committee of the Honolulu County Medical Society.

The past year has been one of continued rapid improvement in the security of these islands from enemy attack and the actions of this office accordingly have been primarily directed toward reducing the scale of operations without decreasing the efficiency of preparation.

A brief chronological review of the year will be of interest and will serve as a record for the Archives of the Society.

Epidemic of Poliomyelitis—In April of 1943 poliomyelitis reached epidemic proportions in the City of Honolulu. A group of physicians specializing in orthopedics recommended that the Kenny treatment should be available to these patients. The already overcrowded hospitals of the city and the serious shortage in personnel and equipment for applying the Kenny treatment made it imperative to have all of these patients treated in one place. The stand-by casualty hospital which the O.C.D. had constructed adjacent to the Shriners' Hospital was rapidly converted to a hospital for poliomyelitis and opened on April 19, as an Emergency Poliomyelitis Hospital serving the Territory.

Commander Creasor of the Navy designed and constructed apparatus for this purpose without which it would not have been possible to carry out the operation of the hospital.

The hospital was operated by the O.C.D. up until August 1, 1943 when it was turned over to the Shriners for operation. At present the hospital is being operated by the Shriners with funds from the Honolulu Chapter of the National Foundation for Infantile Paralysis. For a considerable time the Army supplied

nurses and soldiers as attendants and these have gradually been replaced by O.C.D. nurses and H.T.G. enlisted men.

Cases were received from the outside islands as well as locally from Honolulu. A total of 95 patients have been treated during the past twelve months. At the present time there are 17 patients in the hospital and about 75 who are attending the out-patient department at varying periods of time.

Need for Increased Beds for Tuberculosis—The shortage of beds for patients with open tuberculosis remains a serious problem. Leahi Hospital has a greater enrollment now than it has ever had in its history and the Army has been hospitalizing large numbers of civilians with tuberculosis at Tripler. On November 26, 1943, a one hundred bed addition to the Wahiawa O.C.D. Hospital was opened and filled with tuberculous patients. It continues to operate on this basis.

Transfer of Outside Island O.C.D. Hospitals to Army—In December the Army expressed a desire to take over and operate some of the O.C.D. Hospitals on the outlying islands and the O.C.D. Hospitals at Waimea, Huleia and Makaweli on Kauai and Maunaolu and Waikapu on Maui were turned over complete to the Army on a loan basis. The remaining O.C.D. hospital (Baldwin Home) on Maui was also turned over to the Army for use. The Army assumes responsibility for emergency hospital care for civilians in these areas.

Sacred Hearts—Sacred Hearts Hospital in Honolulu has served as an overflow facility for the overloaded Honolulu hospitals since its opening. Its average patient load has been 50 with a maximum of 89 patients as a daily census. There have been 4,479 patients admitted since it was opened in April of 1942. Since the completion and occupancy of the 30-bed pavilion at Queen's built by the O.C.D. and the 35-bed addition to St. Francis, the maximum occupancy on any day at Sacred Hearts has been 89. It is probable that Federal funds will not much longer be available for the operation of Sacred Hearts and Wahiawa Hospitals and strenuous efforts are being made to have some other agency take them over and operate them or supplant them. In the case of Sacred Hearts it is probable that additional facilities will be added to the local hospitals and enough staff and equipment transferred from Sacred Hearts to take up the added load. The surgical facilities of Sacred

Hearts would be kept intact for possible need, but the wards would be returned to their original use as school rooms.

Wahiawa Hospital—Wahiawa Hospital is filling such an obvious and vital need for this community that it is hoped that it may be possible for some governmental agency to take over the hospital and operate it. No one locally has any authority to speak for the future as to the disposition of the equipment of the hospital, but so long as the equipment remains in the hands of the present custodian it will be available on loan to anyone who operates the hospital. When and if the Federal Government demands an accounting of this property its final disposition will have to be settled. Its average patient load has been 15 with a maximum of 54 patients as a daily census, the tuberculosis unit being excluded. Since the opening of Wahiawa Hospital in May 1942 there have been 2,151 patients admitted.

Plans and Training of Emergency Medical Service—Several maneuvers were held during the year—one involving the City of Honolulu from September 21 to the 26th, one involving rural areas on November 21 and 22nd and one involving the downtown area on November 4. There was one air raid alarm at 10:02 p.m. on December 13. On all of these occasions the Medical Department of the O.C.D. functioned in such a manner as to receive commendation from the medical officers of the Army detailed as umpires.

Retrenchment in the Emergency Medical Service—The Army has recently approved a request from this office for the closing of all the Aid Stations in the city except one and replacing them with mobile teams

composed of doctors, nurses and trained helpers with a large vehicle loaded with the requisite supplies and equipment to allow them to quickly set up a dressing station wherever it might be needed. This reorganization is under way. The city has also been divided into three major zones with a Medical Director in each Zone. The Medical Directors for the Zones are as follows: Zone I—Dr. Harold Johnson; Zone II—Dr. M. H. Lichter; Zone III—Dr. Raymond Kong. Each of these Zones will operate more or less autonomously as the need arises, applying for help from the Control Center if it should be needed. A plan known as Plan "B" has been evolved to meet any situation which might arise from a major disaster not connected with enemy action.

Future Policy—Questions of future policy of the Preparedness Committee have arisen making it necessary that a determination be made in regard to the future medical protection of the community. It is recommended therefore that a Preparedness Committee be elected now for the ensuing year.

Conclusion—In closing I wish to express my deep appreciation for the generous way in which the members of the society have assisted the operation of the E.M.S. of the O.C.D. by giving time and advice, and training and maintaining interest of the volunteers in the program. The enemy has not returned as he was expected to and probably will not return unless the situation in the Pacific changes radically for the worse. The community, however, certainly needs a measure of preparedness, medically speaking, greater than it did before war became imminent.

H. L. ARNOLD, M.D.
Medical Director, O.C.D.





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COUNTY SOCIETY REPORTS

HONOLULU COUNTY MEDICAL SOCIETY ANNUAL MEETING

The annual meeting of the Honolulu County Medical Society was held on Friday, April 7, 1944 at 7:30 p.m. in the Mabel L. Smyth Building auditorium. Preceding this meeting, Dr. Benyas, retiring President, entertained the officers and committee chairmen at dinner at the Pacific Club. Forty members were present at the meeting. Reports of officers and committees were heard.

The following were elected to office:

<i>President</i>	F. J. Halford
<i>Vice President</i>	R. L. Hill
<i>Corresponding Secretary</i>	H. E. Bowles
<i>Recording Secretary</i>	M. Gordon
<i>Treasurer</i>	H. C. Gotshalk
<i>Board of Governors</i>	Jesse W. Smith D. C. Marshall S. E. Doolittle
<i>Alternates Board of Governors</i>	R. D. Kepner H. L. Arnold, Jr. H. M. Johnson
<i>Board of Censors</i>	J. E. Strode
<i>Delegates to Hawaii Territorial Medical Association</i>	P. S. Irwin H. S. Dickson D. C. Marshall W. H. Wynn
<i>Alternates for Delegates</i>	Fred Irwin L. A. R. Gaspar E. W. Mitchell Abraham Ng-Kamsat K. C. Chock Sanford Katsuki
<i>Board of Directors Hawaii Medical Service Association</i>	N. M. Benyas William Winter William Shanahan Ralph B. Cloward
<i>Preparedness Committee</i>	H. L. Arnold N. M. Benyas J. R. Judd N. P. Larsen F. J. Pinkerton J. E. Strode William Winter

Membership Dues.

Dr. Dickson brought up the advisability of raising the dues and it was voted that the Board of Governors give serious consideration to this.

Library Endowment Fund.

Dr. Withington suggested that consideration should be given to placing the funds collected into a limited

endowment, using up income and principal over a number of years, and if it is all gone at the end of 15 or 20 years, let the men then raise what they need. Dr. Walker concurred and felt many who have hesitated to donate would do so if they felt there was to be some use of the money during the next decade. Dr. Smith did not feel that the money should be turned over to a trust company and did not favor spending the principal.

Dr. Halford reported that the money received so far from the City and County and Department of Welfare had gone into the Library Endowment Fund.

Membership.

The Secretary reported a total of all classes of membership as 254. Of these 15 are honorary members; 15 service members and 22 are members in full-time military service.

The Treasurer presented audited report of the society's finances for the eleven months' period ended February 9, 1944 which showed balance in the checking account of \$871.10; balance in the Savings account \$1,953.78; and total in the Library Endowment Fund account \$10,291.17.

Statement of Accounts as of date of the meeting was presented as follows:

<i>Balance in Checking Account</i>	\$ 153.31
<i>Accrued:</i>	
Assessments unpaid, 15 members at \$15.00	225.00
Bookbinding	160.00
	<hr/>
	\$ 538.31
<i>Unpaid Bills</i>	617.50
	<hr/>
<i>Deficit</i>	\$ 79.19
<i>Other Funds</i>	
Savings Account Balance.....	\$ 1,953.78
Library Endowment Fund Account.....	14,058.16
(Total deposits and pledges \$19,940.80)	

Workmen's Compensation Committee. Dr. Pinkerton, Chairman, presented draft of the proposed revision of the industrial accident fee schedule, as his report and invited each member to take a copy for study. Copies will be sent out to all members and the schedule discussed and acted upon at the next regular meeting.

Post-Graduate Committee. Dr. Cloward, Chairman, reported difficulty in getting someone to come to Hawaii, but that he had contacted Dr. Freeman and has a partial promise that he will come.

Committee on Forms of Medical Practice. Dr. Molyneux, Chairman, reported that three meetings of the committee were held during the year, at two of which matters referred to it for settlement by the Hawaii Medical Service Association were discussed and settled satisfactorily.

At another meeting the committee studied with Dr. Mossman the procedure for effectuating Senate Bill No. 139 and agreed to the procedure of having the hospitals add 20 per cent for professional services to the hospitalization charges on City and County patients, this money to be paid from the Department of Public Welfare Funds and turned over to the Honolulu County Medical Society treasury.

A \$2.00 maximum fee for typhoid booster shots was recommended to the society by this committee when it was called upon by the Board of Governors to set a fee for the 1944 immunization campaign.

Program Committee. Dr. Arnold, Jr., reported as follows:

At the last annual meeting of the Honolulu County Medical Society it was decided to resume monthly evening meetings instead of assembling every Thursday morning, as had been done during the first complete fiscal year of the war. These Thursday mornings had been of necessity rather hurried affairs, and it had therefore become customary for the Board of Governors to conduct much of the Society's business, only passing on to the general membership such items of business as seemed particularly suitable for their consideration. This practice has been continued during the past year, partly out of disinclination to change what had proved to be a rather efficient modus operandi, and partly because the attendance at the evening meetings turned out to consist very largely of guests from the medical corps of the Army and Navy and from the Public Health Service, who could not participate in deliberations over business matters.

On April 22 the Society was entertained by the officers of the U. S. Naval Hospital at Aiea Heights, who also presented a program of scientific papers. The meeting was very well attended.

On May 14 Dr. Strode discussed constrictive pericarditis, with presentation of two treated cases, Dr. Stewart reported on the first month's operation of the Emergency Poliomyelitis Hospital, and Dr. George Chu (Sc.D.) presented a movie illustrating the investigation of parasitic diseases endemic in China.

On June 18 the Society was entertained by the staffs of the Territorial Hospital and the 204th General Hospital at Kaneohe; Drs. Kepner, Cloward and Porteus discussed various aspects of prefrontal lobotomy.

In July no scientific program was presented.

On August 18 Dr. W. J. Holmes discussed night vision; the paper was discussed by Lt. Comdr. Ford and Major Wolfe, flight surgeons. Lt. Comdr. Charles MacIntyre discussed fluid and electrolyte balance in the surgical patient.

On September 10 Dr. Pinkerton discussed the ocular fundus in relation to systemic disease, and Messrs. Beasley and Carter discussed the Wagner-Murray-Dingell bill in a general way.

On October 15 Dr. Perlstein discussed pulmonary mycoses, Dr. Radner discussed artificial pneumoperitoneum, and Dr. Lee discussed the skin flap operation for chronic empyema. All three men are on the staff of the Leahi Hospital.

On November 19 Major Gerard DeOrco discussed the newer concepts in the treatment of syphilis.

On December 10 Mr. Frederick Schramm of the Board of Health discussed industrial hygiene, particularly as it pertains to Hawaii today.

On January 7 a symposium on penicillin was conducted by Mr. Martin of the H.S.P.A. Experiment Station and by Captain Watts, Lt. Comdr. Weyrauch and Lt. J. P. Keogh of the United States Naval Hospital at Aiea Heights.

On February 4 Dr. Frank Lahey discussed the Procurement and Assignment Board and then lectured to the Society on peptic ulcer.

On March 3 Mr. Thomas Waddoups spoke on medical testimony, and Dr. Harold Johnson discussed some of his experiences on his recent mainland trip.

With the exception of the January and February meetings, the attendance at these evening meetings has been deplorably small. It has been for the most part between 10 and 20 per cent of the registered membership of the Society. The fact that it was excellent for two successive meetings at which the program (the penicillin symposium and the address by Dr. Lahey) was of extraordinary interest suggests that the usual small attendance has been in general the fault of your program committee. Lacking the usual stimulation of the prospect of a few brisk arguments over various controversial items of the Society's business affairs—this being taken care of by the Board of Governors—it appears that only some unusually inviting program will induce the members to attend their meetings.

This is an unfortunate situation, and it renders your Program Committee's task a most invidious one. It is profoundly embarrassing to ask a man to prepare an address for an organization of nearly 300 physicians and then have him deliver it to 25 of them. The fault lies in the inclination of the average doctor to ask himself, "Will this program be especially interesting to me, or shall I just go to bed early tonight? They won't miss me if I don't come." It is the plain duty of all the members of the Society to attend meetings when they are not actually prevented from doing so. It should not be necessary to bribe physicians with the prospect of a dinner, or free beer, or an exceptionally exciting program, in order to get them to pay ordinary courtesy to the invited speaker of the evening by at least appearing to listen to what he has to say.

Dr. Arnold, Jr., recommended that consideration be given to means of securing attendance.

It was not generally the opinion that members should be required to come to meetings, that there must be stimulus, either a social interest, business interest or educational interest; if necessary make them controversial. A program of several short papers on diversified topics was suggested.

Dr. Smith objected to having so many meetings away from our headquarters, and felt that there was enough talent available among our members without going out to the Army and Navy for papers. Dr. Cloward agreed with Dr. Smith and suggested assigning programs months in advance to the different groups.

Dr. Allison felt that our programs are nothing to be ashamed of compared with meetings in other places.

Several doctors urged that we continue the outside meetings and not pursue an isolation program.

Library Committee. Dr. Walker, Chairman, reported as follows:

The substantial increase in budget allotted for the past year has permitted a splendid advance in growth of the Library. Details of the year's accomplishments will not be given in this report since the subject has been covered rather extensively in "Library Notes" in the HAWAII MEDICAL JOURNAL of November-December, 1943. Attention should be drawn, however, to some of the highlights of the year's progress, notably:

- (1) Improvement in service as a result of better organization.
- (2) Completion of catalog and the beginning of a union catalog of medical journals available in the community.
- (3) A large number of acquisitions, comprising both journals and books, the single largest contribution being from the medical library of the Kalihui Receiving Station. In addition, through the efforts of Mrs. Bolles on her trip to the mainland, a large number of volumes of journals and several books were obtained from the Los Angeles County Medical Society and the University of California Medical Library. Also, Mrs. Bolles obtained one of our most valuable acquisitions of the year; namely, the third and fourth series of

Index Catalog of the Army Medical Library in Washington, consisting of seventeen volumes. In addition to regular subscriptions to journals a number of books were purchased from a list of recommendations made by some thirty physicians in various specialties. Likewise, several donations were made during the year.

- (4) Bookbinding. Through the part-time services of our bookbinder, 193 volumes have been completed from May 1, 1943 to March 31, 1944. The quality of this work is excellent and materially increases the value of the journals in the reference library.

Beginning February 28 of this year arrangements were concluded to enable the bookbinder to bind books for individual physicians on a fee basis. It is already evident that this service is being welcomed with enthusiasm by the doctors and it is hoped that the arrangement may be continued.

The Library Committee held three formal meetings during the year and in addition the individual members gave a considerable amount of time to matters pertaining to the library. Mrs. Bolles, with her assistants, and Mrs. William Shanahan in the capacity of consulting librarian, have put forth an enormous amount of time and effort in developing the library to its present status. I wish to express on behalf of the committee and the society at large my deep gratitude for their splendid efforts during the year.

It is becoming increasingly evident that the future growth and operation of the library will demand the services of a full-time librarian in the near future in order to relieve Mrs. Bolles for her full-time Medical Society duties. The development of an endowment fund may permit this as well as other greatly needed improvements in the library service.

The committee has taken great pleasure in its work of the year and feels gratified in the belief that they have contributed in some small way to the growth of the Medical Library.

The Medical Milk Commission. Dr. William Winter, Chairman, reported as follows:

The Medical Milk Commission held six meetings during the year. Routine business was transacted and an effort was made by the commission to see that the standards of certified milk were maintained in the community.

At the last annual meeting of the medical society a recommendation was made by the Milk Commission that *all* milk produced on Oahu should be pasteurized for the duration of the war. This recommendation was subsequently transmitted to those dairies producing certified milk, by the Commission, and also to the Board of Health. This was not followed by any particular action upon the part of anyone.

During the past year there have been times when the dairies have been unable to meet the standards as required by the commission. Bacterial counts considerably above the allowable maximum have been of frequent occurrence. The question which now presents itself is this: Should the certification of milk, which does not measure up to the rigid standard required by the National Association, continue?

It is the opinion of your Commission that it should not. Consequently letters have been sent to the dairies concerned asking them if they feel capable of producing milk that conforms to the standards or whether they do not. It is hoped that the certification of milk will continue, but if any producer feels that he is unable to meet the requirements, then he will be expected to give up the production of certified milk. There will be no compromise upon the part of the Commission. Copies of the above mentioned letters have been sent to the Board of Health.

I would like to thank those who have worked with me for their sincere interest, their patience and their advice.

Discussion. Dr. Lee felt the Commission's stand was well taken and hoped the Board of Health would take action to follow up the Commission's recommendation.

Suggestion was made to put the dairies on a probation period and removing the certification for 30 days, and if requirements are not met in 30 days, to suspend certification for the duration, but not condemning the dairies because of labor shortage or inexperience of help.

Action, unanimous. It was voted to approve the

findings and recommendations of the Medical Milk Commission, and recommend, if the Commission sees fit, to use a 30-day probation period.

The Preparedness Committee's report by Dr. Arnold, Chairman, is omitted here and will appear under the Emergency Medical Service section of this issue since it is of general interest also to the members of the other islands.

Discussion of this report ensued with Dr. Benyas reporting that the Board of Governors had passed a resolution asking that Sacred Hearts be continued until such time as there will be sufficient beds to take care of the community; the number of such beds to be contingent upon the Chamber's survey report which is expected to be ready April 15. Dr. Arnold wished the society to back up his statement that a minimum of 100 beds were required. Further discussion indicated that with Sacred Hearts discontinued, the 100-bed addition at Queen's would still leave the community inadequately cared for; an epidemic would fill the 100 beds overnight; the rates of occupancy for the community would still be 100 per cent instead of a safe 80 per cent; that we have had three dry years with low incidence of respiratory infection; that there is a general bed shortage of not less than 250 and an all-over shortage of all types of beds of 1000. It was agreed, if there is not too great urgency, that this matter be left until the survey report is available.

Report of the President—Dr. N. M. Benyas.

You have heard the reports of all our committees, giving you the activities of the Society for the year. We have tried to make reports at the membership meetings of the business transacted by the Board of Governors, but since not everyone attends all of the meetings there are of necessity many things in which the Society has participated of which the general membership is not aware, or has only a vague idea about. For that reason I should like to bring to your attention two or three of the major activities which everyone should be familiar with.

Convalescent Home: I am pleased to be able to tell you that much progress toward the achievement of a convalescent-nursing home has been made since last April when a circular was sent to each member in an endeavor to find out the need for such a home. At that time the survey showed that almost

600 patients admitted to hospitals during the year could have been discharged earlier if suitable convalescent nursing facilities existed;

40 patients could have been discharged as of the date of inquiry, and

23 nurses could have been released who were attending chronically ill patients at home.

Along with others interested in this problem, we, as a society, laid the matter into the lap of the Chamber of Commerce in January of this year asking them to co-ordinate the efforts of the various agencies and find the means of making such a home possible.

The Chamber's Committee has satisfied itself that a need exists and has gathered a long list of endorsements from community organizations to support this need. It has even found a suitable site for such a home and, at a meeting held just two days ago of the Chamber committee with members of the Medical Society, it was disclosed that the committee is now to the point of going out after the funds necessary to secure the property and guarantee an operating capital for the initial years of operation.

I think I can safely say that without the initiative taken in the Medical Society and its persistence in seeing that the scheme was going forward, the idea of a convalescent-nursing home would still be something to talk about, and nothing done. If the plans now under way materialize, within a very

few months the hospitals of the community will get at least this much relief in their shortage of hospital beds.

Hospital Survey. It was the Medical Society's active interest also which caused the Chamber of Commerce to undertake a survey of the civilian hospitals. We are promised by the 15th of this month a complete report from Captain Johnson, who has been conducting this survey for the Chamber, with recommendations not only as to the number of beds needed for this community, but pointing out other needs of the hospitals as well.

This matter of the shortage of hospital beds has come before your Board of Governors continually throughout the year. First the obstetricians could not find beds for their patients, then there was the question of hospitalizing certain infectious cases, and lastly a request for the Medical Society's endorsement for a 50-bed psychiatric unit at Queen's Hospital. In each of these problems, the Society endorsed the needs as they were represented to it by its members and brought the matter to the attention of those who were in a position to give some aid.

Senate Bill 139: Our society owes a vote of thanks to Dr. Mossman for the arrangements completed with the City and County, and the Department of Public Welfare to pay for the doctors' services for medically indigent patients under the provision of Senate Bill 139. He negotiated with these departments and the hospitals and since October the hospitals have been adding 20 per cent for professional services to their bills for hospitalization for C. & C. and Department of Welfare patients. As this money is collected it has been turned over to the Honolulu County Medical Society. To date almost \$3,000 has been so received and by action of the Board of Governors has been added to the Library Endowment Fund.

Our own problem, as a society, was our library. The war has made great demands on it. You all remember how little the library was used by our own members. A record kept for March of this year shows that a total of 429 persons used the library, as follows: 71 of our own doctors, 103 nurses, 230 Army and Navy doctors and 25 lay persons. These people took out 115 books and 132 journals on loan and used besides, in the library, 229 books and 290 journals. Over 500 books and 1,000 pamphlets were accessioned last year. You will see from this, gentlemen, that our library is giving a useful service—and, in a sense, a war service—for to many of the service doctors there is no other place where these books and journals are available to them. But this type of service makes demands upon the library quite different from the old days and the service has had to be developed in keeping with the demand. It requires constant attendance, and a tremendous amount of work which is not apparent on the surface. It is no longer the job of a part-time custodian, but a job for a full-time trained librarian.

This year the Society doubled its budget for the library, but at that, aside from adding the services of a bookbinder, its budget has only been able to afford the part-time services of a trained librarian (Mrs. Shanahan) and afternoon service of two high-school seniors, and a fair sized purchase of new books, the second of any size made by the library since 1938.

It became quite evident as the year progressed, that the library would need at least a budget of \$3,000 annually if it is to render even the fair service it does now, and, if the members were not to be taxed yearly for that purpose, or have the dues raised, the money must be forthcoming elsewhere. The ordinary dues of the society would not carry this additional burden, for we have consistently over the last three years ended the year either in the red, or very close to it.

It was for this reason that we attempted to raise a Library Endowment fund. I do not believe a goal of \$75,000 or \$100,000 for this fund is too great to achieve. We have \$20,000 already with very little sales effort put forth, but it will have to grow considerably more before the income from the fund can give any relief to the society's library budget.

I think we all owe the Library Committee a special vote of thanks for the progress our library has made this year, but at this point, I want to mention that much of what has been achieved is due to the initiative and planning of our secretary. I always thought I had a fair grasp of the interests of the Society, but I never realized until this year, in my capacity as president, how much work goes into keeping these things running smoothly. I do not believe many of you know how much work is done inside and outside of that office. You forget how far the activities of the medical society have extended themselves since the days when we had one small room at the Queen's with a part-time clerk to see that the books were not carried away and did whatever work was laid out for her. All the minutes of the meetings, all the correspondence, the collection of dues and reports all had to be written and attended to by the officers themselves. All of this Mrs. Bolles has relieved us of. She attends all of the meetings of the Board of Governors and the committees; she writes up the minutes of these meetings and sees to it that the business therein is carried out; she writes 99 per cent of all correspondence. Most of these meetings do not start until after the time most other people have left their offices for the day. In the last year almost every Board of Governors meet-

ing ran well on to 6 p.m. I have never known her to limit her hours by the clock when it came to getting work done. She also does all the foot work for the Society, using her own car and gasoline for that purpose—she sees about taxes, collections, pays the bills, attends meetings of the Chamber of Commerce Public Health Committee, Nutrition Committee, Hawaii Health Education Council, and is in process right now of helping plan a public meeting under the auspices of the H.M.S.A. which will bring to the public in plain language the provisions of the Wagner-Murray-Dingell bill. It is part of her job to keep her fingers on the pulse of things that affect the Medical Society's interests. If, therefore, she does not happen to be available on the phone, there is probably a good reason for it.

This year has been a great education to me, and I thank you all for having given me this opportunity to serve you, if serve you I have. If nothing else, I take pride in having been in on the start of the several things enumerated above and it is my fond hope that next year will see the community with a convalescent-nursing home in operation and an adequate library fund to meet all the library's needs.

Thanks to all the committee chairmen and officers, etc., etc.

M. GORDON, M.D., *Recording Secretary*

HAWAII COUNTY MEDICAL SOCIETY

The 227th regular meeting of the Hawaii County Medical Society was called to order by the President, Dr. M. H. Chang at 7:15 p.m., April 6, at the staff room of the Hilo Memorial Hospital. Seventeen members were present.

The secretary's report was read and approved, after a discussion was held about the journals subscribed to by the society. The question was raised that too many unnecessary journals were being subscribed to. However, it was shown by the report of the Library Committee that only ten journals were subscribed to by the society and that eight were contributed by members of the society.

The society extended its thanks and appreciation to Dr. L. L. Sexton for the good work he did as President last year, and for the annual dinner last month.

Dr. Wilbar, President of the Board of Health, was guest speaker, discussing foodhandlers' regulations. He stated that Oahu had about 12,000 foodhandlers; that over a seven-year period only eight had been turned down by the old type of examination. Statistics presented showed that one state after another has found this type of examination unsatisfactory and had discontinued it. Therefore in September 1943 the present regulations were put into effect requiring chest x-rays to be taken of all foodhandlers and, at the option of the individual, a blood test for syphilis. This work has been started on Oahu and will be extended to the other islands. How frequently these x-rays should be repeated has not been decided. Foodhandlers may go to their private physicians for x-rays, but later all will be taken care of free.

A letter was read from Dr. Pinkerton regarding the appointment of Dr. Carter as representative of P. & A. Service. The Society voted to notify Dr. Pinkerton that Dr. Carter had been carefully selected as

their representative, being the only man to meet the requirements set forth for the position. Dr. Phillips asked that the secretary write to Dr. Pinkerton inquiring how many men are to be called from the island of Hawaii, it being his understanding that the statement had been made that there were not enough physicians on this island and none would be taken.

The Secretary informed the society that Col. Moggab had invited the society to a dinner meeting in June. It was agreed that either the first Thursday at 5 p.m. or the first Saturday at 4 p.m. would be satisfactory.

Meeting adjourned at 9:15 p.m.

R. T. EKLUND, M.D., *Secretary*

MAUI COUNTY MEDICAL SOCIETY

The regular meeting of the Maui County Medical

Society was called to order on April 28, 1944, by Dr. Patterson. Members present were Drs. Patterson, von Asch, Sanders, St. Sure, Rothrock, Shimokawa, K. Izumi, Kanda, Kushi, McArthur; guests present: Drs. Schram, Bunts and East.

The coming Territorial medical meeting was discussed and Dr. Patterson reported that the matter of extending the H.M.S.A. to other islands, the Emergency Maternal and Child Care of servicemen's dependents, were to come up. It was voted to approve the proposed statement of policy of the Council of the Territorial Medical Society.

No action was taken on Dr. McArthur's suggestion that the Maui society sponsor an informal medical journal.

Dr. Schram, local Board of Health officer, discussed the present dysentery epidemic.

Major Carl Bunts, M.C., A.U.S., gave a short talk on "Recent Advances in the Field of Urology with Special Emphasis on the War and Its Complications."

GEORGE VON ASCH, *Secretary*

INDEX TO ADVERTISERS

Abbott Laboratories	245	Marcella Cosmetics, Inc.....	262
American Factors, Ltd.....	258	Mead Johnson & Company.....	Back cover
Burroughs Wellcome & Co., Inc.....	239, 261	Parke, Davis & Company.....	228
Commercial Solvents Corp.....	234, 235	Patrogalar Laboratories, Inc.....	Third cover
Cutter Laboratories	246	Philip Morris & Co., Ltd., Inc.....	236
Don Baxter Co.....	240	Sandoz Chemical Works, Inc.....	243
Eli Lilly & Company.....	212	Squibb & Sons, E. R.....	256
Galen Company	249	Upjohn	207
Hawaii Medical Service Association.....	208	Wander Co.	210
Julius Schmid, Inc.....	244	Watkins Printery	238
Lederle Laboratories, Inc.....	257	Winthrop Chemical Co.....	227
McArthur & Summers Pharmacy.....	250	Wyeth & Brother, Incorporated.....	Second cover



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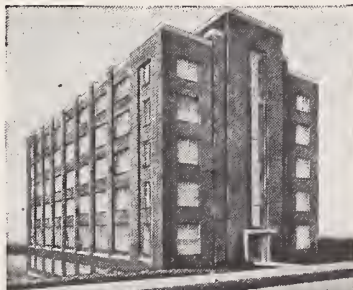
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REFERENCES: ¹FLEMING, A.; Brit. J. Exper. Path. 10: 226 (June) 1929.

²CHAIN, E.; FLOREY, H. W.; GARDNER, A. D.; JENNINGS, M. A.; ORR-EWING, J., and SANDERS, A. G.; Lancet 2: 226 (Aug. 24) 1940.

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LIBRARY NOTES

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7:30 p.m. - 9:30 p.m.

Starting June 1st the library will be open from 7:30 to 9:30 every evening, except Sundays; for a trial period. This is being done in response to suggestions from various members who have not the time during the day to use the library. Two student nurses are being trained to check books in and out, and are being instructed where to find books and journals, but their training will of necessity be limited and they cannot be expected to look up reference material or find material and information that is not catalogued. It is suggested that if such service is anticipated, the request be made during the daytime; the librarian will be glad to get the material together and have it ready at the desk when you come in the evening.

For the present there will be no one in attendance on Sundays. Experience has shown that the library is little used on that day, and it is difficult to find an attendant for Sundays. If a demand for Sunday service is evidenced, the library committee will be pleased to consider giving it.

It is always possible for a member to use the library at off hours if he arranges for it beforehand.

LIBRARY REGULATIONS

Loan privileges are extended to all members of the Hawaii Territorial Medical Association, the Nurses Association, Army and Navy medical officers.

Books on loan. All but reference books and books in the rare and historical collection may be taken out on loan.

Journals on loan. All journals over six (6) months old may be taken out on loan.

Pamphlets. All pamphlets may be taken out on loan.

Loan period. Ten (10) calendar days.

Fine. Five cents per day for each book and journal overdue.

Lost and unreturned books will be billed at twice their cost.

LIBRARY EXHIBIT

An exhibit was held in the library during the annual Territorial Medical Convention. The most recent book purchases in each branch of medicine were featured.

Gifts of books were also displayed. Of special interest among these was Dr. James R. Judd's donation to the Rare Book Collection—a pamphlet entitled, "The Medical History and Medical Education in Japan."

Pamphlets on various subjects were exhibited with a list of the subjects on which pamphlets and reprints are available in the library. The doctors were invited to send in reprints of their own articles as the library is making an effort to feature especially a collection of material written locally and on topics of local interest.

Bound volumes of various journals were exhibited to demonstrate the work being done for the library by our bookbinder, Henry Takara. This binding of medical journals is the outstanding feature in the progress of the library for the year.

It is the hope of the librarian and her staff that the doctors will continue to make greater use of the library facilities.

GIFTS AND PERMANENT LOANS made during the year

Gifts by authors:

Doherty & Runes—*Rehabilitation of the War Injured*

Mouritz—*A Brief History of Leprosy*

Pleadwell—*Works of Joseph Rodman Drake*

Jones—*Green Fields and Golden Apples*

Ritter—*Anatomy of the Nervous System*

Kalihi Hospital—54 books

University of California Medical School—45 books

Los Angeles County Medical Society—33 books

Palama Settlement—32 books

Surgeon General (thru DR. H. W. JONES)

Index Catalogue—17 volumes

PLEADWELL, DR. F. L.—16 books

Bishop Museum—5 books

Tuberculosis Association—6 books

SCHATTENBURG, DR. O. LEE

Ransom, *Anatomy of the Nervous System*

Tidy, *Legal Medicine*

JONES, DR. H. W.

Lundy, *Clinical Anesthesia*

Darnall, *War-time Medicine*

CLOWARD, DR. R. B.
 Hamby, *Hospital Care of Neurosurgical Patients*
 Kappers, *Comparative Anatomy of the Nervous System*
 Board of Health
 Moore, *Modern Treatment of Syphilis*
 Pelouze, *Gonorrhoea in the Male and Female*
 HOLLMAN, DR. H. T.
 Sternberg, *Malaria and Malarial Diseases*
 Wendt, *A Treatise on Asiatic Cholera*
 Nurses' Association
 Tracy, *Nursing an Art and Science*
 Young, *Essentials of Nursing*
 American Red Cross
 Home Hygiene and Care of the Sick
 GURDIN, DR. MICHAEL
 Ivy, *Manual of Standard Practice of Plastic and Maxillary Facial Surgery*
 SPENCER, DR. F. C.
 Flexner, *Wm. Henry Welch and the Heroic Age of American Medicine*
 TAYLOR, DR. T. L.
 Kocher, *Operative Surgery*
 VAN POOLE, DR. G. M.
 Mittendorf, *A Manual on Diseases of the Eye and Ear*
 HILL, DR. ROGERS L.
 Mouritz, *Path of the Destroyer*
 American Medical Association
 Handbook of Nutrition
 New and Non Official Remedies
 LI, DR. BENJAMIN
 Yearbooks of Dermatology
 ARNOLD, DR. H. L.
 Annals of Internal Medicine. Life subscription.
 CRAIG, DR. A. L.
 Journal of Bone & Joint Surgery
 HOSOI, DR. K.
 Journal of Heredity.
 Scientific Monthly
 Los Angeles County Medical Society—
 Numerous bound volumes
 Medical Group
 Am. J. Medical Science
 J. Pediatrics
 Am. J. Diseases of Children
 Am. Heart Journal
 PLEADWELL, DR. F. L.
 History of Medicine Bulletin
 Isis
 Naval Medical Bulletin
 Military Surgeon
 VAN POOLE, DR. G. M.
 Ophthalmology journals—back numbers
 University of California—numerous bound volumes

ACCESSIONS

Coca, *Asthma & Hay Fever in Theory & Practice*
 Rackemann, *Clinical Allergy*
 Ranson, *Anatomy of the Nervous System*
 Schaub & Foley, *Methods for Diagnostic Bacteriology*
 Holmes, *Bacterial & Rickettsial Infections*
 Stieglitz, *Geriatric Medicine*
 Rivers, *Viruses & Virus Diseases*
 Ormsby & Montgomery, *Diseases of the Skin*
 MacKee, *X-Rays & Radium in the Treatment of Diseases of Skin*

McLeod, *Pathology of the Skin*
 Sappington, *Essentials of Industrial Health*
 Sharr & Kreuz, *Skeletal Fixation of Fractures*
 Boyd, *Textbook of Pathology*
 Sollman, *Pharmacology*
 Brock, *Injuries of Skull, Brain & Spinal Cord*
 Freud, *Basic Writings*
 Stern, *Mental Illness in the Family*
 Cheney, *Outlines for Psychiatric Examinations*
 Fulton, *Physiology of Nervous System*
 Pohle, *Clinical Roentgen Therapy*
 Roesler, *Clinical Roentgenology of Cardiovascular System*
 Belding, *Textbook of Clinical Parasitology*
 Manson, *Tropical Diseases*
 Walters, *Carcinoma of the Stomach*
 Nesbit, *Transurethral Prostatectomy*
 Orr, *Wounds & Fractures*
 Trueta, *Principles & Practice of War Surgery*
 Mouritz, *A Brief World History of Leprosy*
 Directory of Medical Specialists
 American Journal of Roentgenology & Radium Therapy
 Current List of Medical Literature

MISSING JOURNALS

Binding of the following journals for the library is being delayed for want of the following numbers. If anyone has these and is willing to give them up, he would be rendering the library a great service.

<i>American Journal of Psychiatry</i>	<i>Journal of Urology</i>
1921 July-Dec.	1923 April
1927 April, Nov.	1924 July
1928 Mar., July	1926 Jan.
1931 Jan., July, Sept. Nov.	1927 Jan.
1933 Jan., Mar., May	1928 Jan., Oct.
1934 Jan., Mar., May, Sept., Nov.	1929 Jan., Feb., July, Oct.
1937 May, July, Sept., Nov.	1930 Aug.-Dec.
1939 Jan.	1931 July-Nov.
1940 May, Sept., Nov.	1932 Feb., Apr., June, Sept.-Nov.
1941 Jan.-June	1933 Feb.-June
	1937 Feb.-June
<i>American Journal of Clinical Pathology</i>	1940 Feb., Mar., May, June
1937 Nov.	
1938 May	<i>American Journal of Ophthalmology</i>
1939 Sept.	1919 July, Dec.
1940 Jan.	1920 Oct.
<i>American Journal of Cancer</i>	1924 June
1932 Nov.	1925 All
<i>American Heart Journal</i>	1932 Aug.-Dec.
1934 All but June	1936 Jan., Aug.
1935 All but Feb. & Aug.	1938 Feb., May, Aug.-Dec.
<i>British Journal of Ophthalmology</i>	<i>American Journal of Obstetrics & Gynecology</i>
1926 June, Sept., Dec.	1917 All but May
1927 June	1918 May-Dec.
1929 Nov.	1919 Jan.-Oct.
1930 Dec.	1931 Mar.
<i>British Journal of Surgery</i>	<i>Archives of Internal Medicine</i>
1934 July-Dec.	1909 Jan.-June
<i>British Medical Journal</i>	1911 Jan.-June
1940 Aug.	1912 July-Dec.
<i>Lancet</i>	1932 Feb.-May, July-Sept., Dec.
1897 Jan., April	1933 Jan.-Mar., June, July, Nov.
1898 Feb. 5, July 16	1934 Jan., Feb., Apr., July, Sept., Dec.
1899 June 24, July 1	1935 Feb., Mar., May, July, Aug., Nov.
1930 July 5	1940 Feb., Aug., Nov.
1933 May 27	1941 Jan.-Nov.

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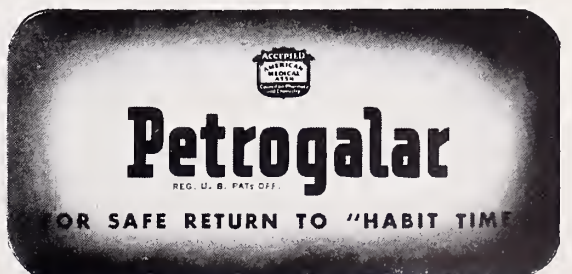
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NUTRITIONAL ANEMIA IN INFANTS

REASONS FOR EARLY FEEDING OF PABLUM (OR PABENA)

1. The infant's initial store of iron is rapidly depleted during the first months of life. (Mackay,¹ Elvehjem²). About 30% of the iron freed from the hemoglobin during the first two months is lost, and while hemoglobin destruction takes place, all infants are in negative iron balance. (Jeans,³ and Usher, et al.⁴).
2. During the early months of life the infant obtains very little iron from milk—1.44 mg. per day from the average bottle formula of 20 ounces or possibly 1.7 mg. per day from 28 ounces of breast milk. (Holt,⁵ Jeans³). The incidence of nutritional anemia has been found to be high among infants confined largely to a diet of cow's milk. (Davidson, et al.⁶ Usher, et al.,⁴ Mackay¹).

For these reasons and also because of the low hemoglobin values so frequent among pregnant and nursing mothers (Strauss,⁷ and Gottlieb and Stearn⁸), the pediatric trend is constantly toward the addition of iron-containing foods at an early age, both to normal infants and those with pylorospasm. (Neff,⁹ Blatt,¹⁰ Brennemann,¹¹ Monypenny¹²).

THE CHOICE OF THE IRON-CONTAINING FOOD

1. Many foods high in iron actually add very little to the diet because much of the mineral is lost in cooking or because the amount fed is necessarily small or because the food has a high percentage of water. Strained spinach, for instance, contains only 1 to 1.4 mg. of iron per 100 Gm. (Bridges¹³).
2. To be effective, food iron should be soluble. Some foods fairly high in total iron are low in soluble iron. Thus egg yolk and liver have less soluble iron than does farina, which is very low in total iron. (Summerfeldt¹⁴). Oxalate-containing leafy vegetables are low in soluble iron and appear not to be well utilized as a source of iron by infants. (Kohler, et al.,¹⁵ and Stearns¹⁶).
3. Pablum (and Pabena are high both in total iron (30 mg. per 100 Gm.) and soluble iron (7.8 mg. per 100 Gm.) and can be fed in significant amounts at an early age, without digestive upsets. (Blatt,¹⁰ Monypenny¹²). Clinical studies of sick and well babies have shown Pablum to be of value in raising hemoglobin values (Crimm, et al.,¹⁷ Summerfeldt and Ross¹⁸), even when egg yolk and spinach were not effective (Stearns¹⁶).

Pablum, a palatable mixed cereal food, vitamin and mineral enriched, and cooked thoroughly and dried, consists of wheatmeal (farina), oatmeal, wheat embryo, cornmeal, powdered beef bone, sodium chloride, alfalfa leaf, brewers' yeast, and reduced iron. (The oatmeal form of Pablum is called Pabena.)

^{1 to 18} Bibliography on request.

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NUMBER

EARLY AMBULATION
IN SURGICAL PRACTICE
M. A. BRENNECKE, M. D.

THE N.Y.A.
OF MED.
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TRANSFUSION THERAPY IN SURGERY AND
ITS RELATION TO THE BLOOD BANK

ROGERS LEE HILL, M. D.

CIVILIAN HOSPITAL NEEDS

SURVEY REPORT
(FIRST OF THREE PARTS)

LUCIUS W. JOHNSON, CAPTAIN, M. C., U. S. N.

INDEX TO VOLUME 3

TRANSACTIONS—FIFTY-FOURTH ANNUAL MEETING
HAWAII TERRITORIAL MEDICAL ASSOCIATION





**"MY DOCTOR'S MADE
A NEW MAN
OUTTA BOTH OF US!"**

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Happy"*

... IF IT'S AN **SMA BABY!"**



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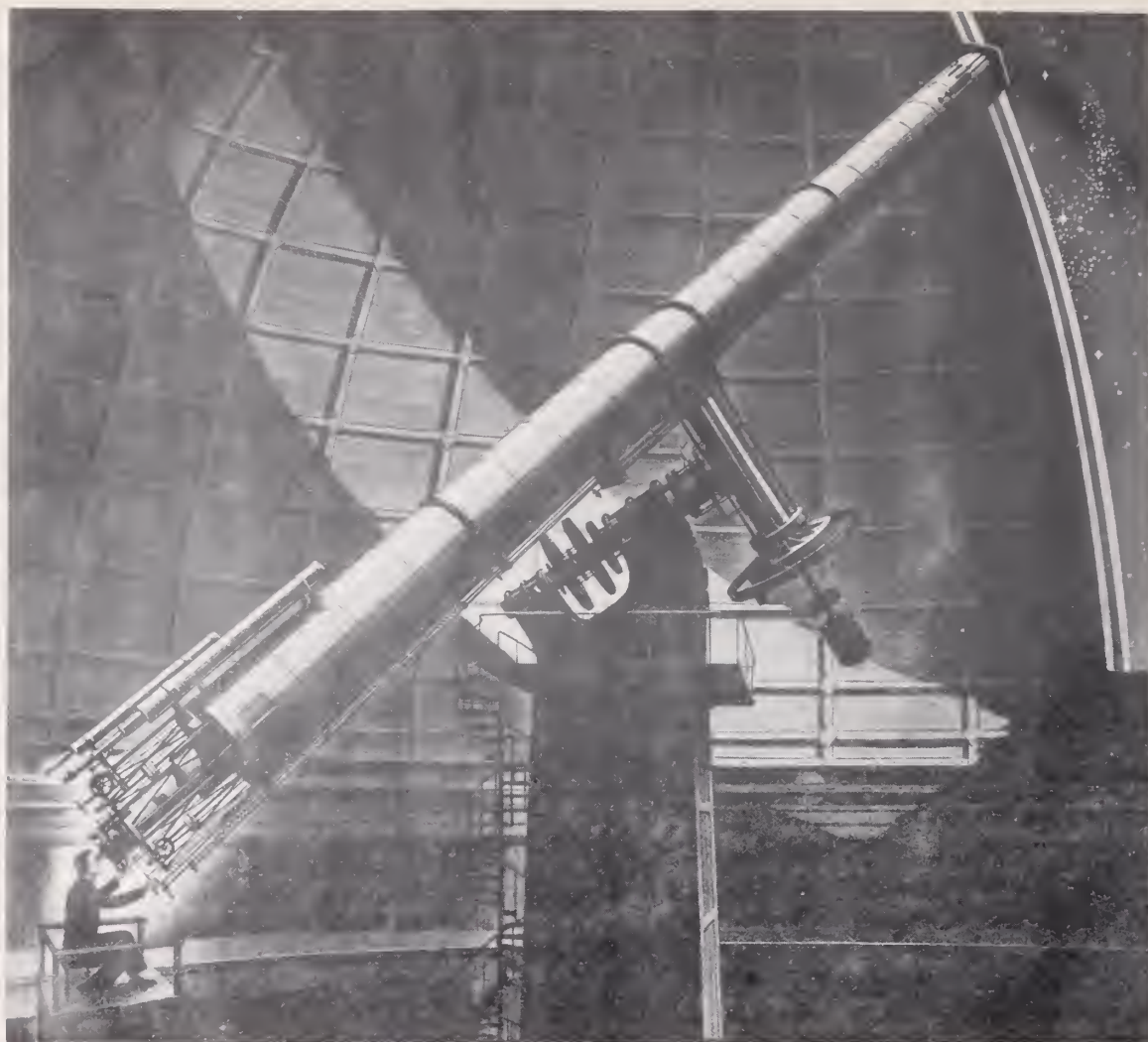
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Early Ambulation

AS PART OF THE PHYSIOLOGICAL BASIS OF SURGICAL PRACTICE: A REPORT OF 214 CASES

M. A. BRENNECKE, M.D.*

Waimea, Kauai

Early ambulation is physiological. In order to permit it, all the other principles of operative care must be physiological. There is a tendency to keep surgical care complicated by unquestioning acceptance of statements found in medical literature over the past fifty years.

In this paper on early ambulation, a small series of cases is reported, and physiological principles of surgical care are reviewed. For the purpose of this discussion operative routine is divided into preoperative, operative, and postoperative care.

PREOPERATIVE CARE

The primary principle of preoperative care is the continuation of the normal physiology of the body.

The physical and mental status of the patient must be disturbed as little as possible. A purge given the day before operation, as recommended in most standard textbooks of surgery, is unphysiological if the patient had a normal bowel movement that day. If he did not, he is given an enema. The patient is not put at absolute bed rest one or two days before surgery, but must be encouraged to be up and about within the limits of his physical capacities, short of fatigue. The ingenious discovery¹ of the volume loss of circulating fluids in a patient kept at absolute bed rest for any length of time has explained the higher incidence of shock in the bed-ridden patient. Absolute bed rest of forty-eight hours will depress the normal physiological tone of the circulatory and muscular systems of a healthy individual.

Adequate dosage of hypnotics must be given the night before surgery to insure an average amount of sleep. A restless night with an inadequate amount of sleep from apprehension will bring a fatigued patient to surgery, with a consequent decrease of efficiency to combat the trauma of the operation.

The blood chemistry of the preoperative patient should be normal.

In the average patient and in the mildly subnormal patient, a forced fluid intake the day before surgery will probably correct any electrolytic imbalance of the tissue fluids. Ravdin² has shown that a high protein diet four to five days before surgery prevents liver damage and shock much better than a high carbohydrate diet alone as was formerly believed. All peptic ulcer cases, all patients toxic for more than twenty-four hours, and all malignant cases most like-

ly will have an electrolytic and serum protein imbalance. These three types of cases should always have serum protein and blood chloride determinations preoperatively. Because they always have some vitamin deficiency also, large doses of vitamins, particularly vitamin B complex and vitamin C, should be given to them.

OPERATIVE CARE

The primary principle of operative care is to disturb the normal physiological processes as little as possible. This is dependent upon the method of anesthesia and upon the surgical technique used.

Of all the anesthetics, regional anesthesia in the form of subarachnoid block, nerve block, field block, or local infiltration is the most physiological. General anesthesia in any form as the sole agent is an overdosing of the entire human organism to obtain anesthesia for only a small part of that organism. Why should the highly sensitive central nervous system be anesthetized to obtain anesthesia of the right lower quadrant of the abdomen to remove an appendix? Any anesthetic drug is foreign to the human organism, and each one has its own toxic properties, no matter how slight. By using a combination of anesthetic agents, only a small amount of the specific toxin inherent in each drug is present, and the normal physiological processes are disturbed as little as possible. The use of light ether, if necessary, with regional anesthesia, is better than using ether alone; the use of intravenous sodium pentothal to produce sedation only, with subarachnoid block, is better than deeply anesthetizing the whole organism in order to obtain deep anesthesia of the operative area. The toxicity of anoxemia is more damaging to the human organism than the toxicity of any of the anesthetics. For this reason, a high concentration of oxygen given with the B.L.B. mask or by the oropharyngeal method in any type of anesthesia lowers the incidence of morbidity. If general anesthesia must be used, cyclopropane is the best because a concentration of eighty per cent oxygen is possible during deep anesthesia.

Surgical technique which disturbs the normal as little as possible must include the following objectives. The incision must be large enough to obtain adequate exposure so that no force is necessary in retraction. The errors of a large incision are few, while the errors of a large amount of force are many. The tissues must be handled with delicate care. Hemostasis must be produced by clamping and ligating

* Plantation Surgeon for three sugar plantations on Kauai, T. H.

the blood vessels only. The fascia is the most delicate of tissues and even momentary clamping with a hemostat will cause necrosis. Suturing a fascia tighter than is necessary to obtain coaptation only, will cause a destruction of the fascia under pressure by the suture until that suture lies in the tissue without tension. The most important fascial plane, although the smallest, is the transversalis fascia, which must be sutured with particular care. Tissues must always be cut with a sharp instrument, for blunt dissection is much more traumatic. It is true that blunt dissection cannot always be avoided, but the objective must be to make a sharp incision whenever possible.

These objectives are never obtained completely in any operation, but by constant alertness to these principles, the normal physiology of the body is least disturbed. If these principles are followed 100 per cent in each operation, there will be little pain or distention postoperatively. In order to emphasize these essentials the surgeon should make a mental survey after each operation and answer in the affirmative or negative each of the above points of surgical technique. This should be done by the experienced as well as the young surgeon. The importance of these principles is forgotten too frequently in most hospitals.

POST-OPERATIVE CARE

The primary principle of the postoperative care is to maintain the normal physiology that has not been disturbed and to return to normal as soon as possible those physiological processes which have been disturbed.

Morphine is given liberally to permit movement of the extremities and deep breathing at frequent intervals without much discomfort. The patient must be instructed to take deep breaths every half hour immediately after the operation and must be turned in bed every time the temperature is taken to help prevent a postoperative pulmonary atelectasis or the formation of thrombi. Beginning on the first postoperative day, the patient is instructed to devote his entire day to the exercise of his arms and legs. This helps prevent blood stasis, one of the primary causes for the formation of thrombi.

By insuring a urinary output of 1000 cc., but attempting to obtain an output of 1500 cc. every twenty-four hours, there is almost no danger of the electrolytic balance of the body fluids being disturbed. The fluid intake and output should be recorded every eight hours so that a careful check may be made at these intervals. If the urinary output falls below 1000 cc. in spite of adequate fluid intake, then blood chemistry determinations are in order. The proper amount of fluid intake can be estimated by remembering that the volatile loss of fluid in twenty-four hours in an uncomplicated case in a comfortable atmosphere is 2000 cc. If there is excessive perspiration during surgery or postoperatively, or if the

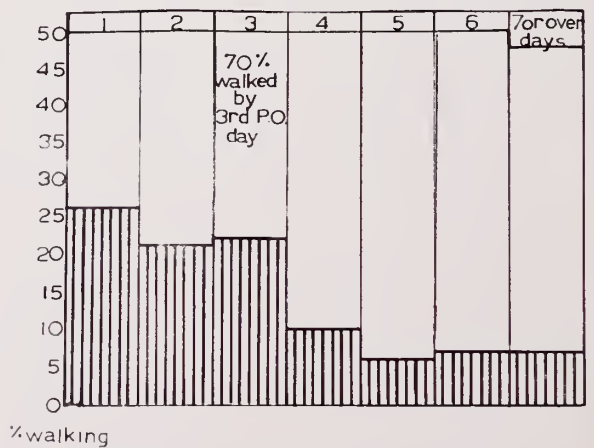
weather is hot, this can be estimated and added to the expected urinary output and average normal volatile loss. If parenteral fluids are necessary, the loss of electrolytes through urine or gastric drainage are satisfactorily replaced by administering normal saline of Ringer's solution, volume for volume lost.

A return to the normal diet as soon as possible prevents distention. Most standard textbooks state that a regular diet should be given after the fourth or fifth day. However, patients do better if a regular diet is given the first or second day. An excellent criterion used at Yale,³ based upon physiological principles, is the starting of fluids or solids by mouth as soon as peristalsis is heard by stethoscope.

Bed rest for over forty-eight hours for any person produces pathological changes.¹ For that reason early ambulation is important, and should be started the first or second day postoperatively. If the fascial planes of the abdominal wall have been sutured anatomically without tension, the incision, regardless of type, is as strong as any other portion of the abdominal wall. No abdominal incision should be closed entirely by catgut because of the occasional case in which catgut is absorbed rapidly due to a sensitivity of the tissues to the gut which may produce abdominal wound disruption.⁴ For this reason some non-absorbable suture should be used on fascia in addition to the catgut.

The accompanying table gives the number of abdominal operations and the percentage of cases walking on different days postoperatively. Of the appendectomies fifty per cent walked before the temperature was normal. The patient's being ambulatory had no effect on the continuation of the elevated temperature. The patient with an acute appendicitis was asked to walk as early as the patient with an interval or normal appendix.

POST-OPERATIVE WALKING DAY FOLLOWING 227 MAJOR OPERATIONS



No particular type of abdominal incision was favored when early ambulation was planned because the midline, rectus, and muscle splitting incisions

OPERATIONS	NO.	NO. WALKING P.O. DAY						PTS. & P.O. DAY WALKING AFTER 7TH			REMARKS
		1	2	3	4	5	6	7			
Appendectomy	163	51	37	38	12	9	10	3	3 pts.— ?	All types of incisions.	
Cholecystectomy	9	2	1	2	2	2				1. Rectus and Kocher incisions. 2. 6 drained by stab w., 3 not drained.	
Cholecystectomy with drainage of common duct	2	1				1				Rt. rectus incisions with drainage by stab wound.	
Upper Abdominal Exploration	2		1			1				Rt. rectus incisions.	
Ruptured Duodenal Ulcer	4			2	1		1			1. 2 with 2 in. subcostal incision 2. 2 with upper rt. rec. incis.	
Pelvic Laparotomy for Adnexal Disease	20	5	3	3	7		2			Suprapubic midline incision.	
Supracervical Hysterectomy	8	1	1	2	1	1	1	1 pt.— ?		Suprapubic midline incision.	
Nephropexy	4		1					1 pt.— 8 1 pt.— 9 1 pt.— 12		None.	
Low Cervical Caesarean Section	2					2				Suprapubic midline incision.	
Indirect Hernioplasty	8		1	2				2 pt.— 14 2 pt.— 18 1 pt.— ? 1 pt.— 15		2 sutured with No. 80 cotton, the other with Deknatel D Silk (.008 in.) Sutured with Deknatel D (.008 in.)	
Direct Hernioplasty	2		1							1 for duodenal ulcer, 2 for cancer of stomach.	
Subtotal Gastrectomy	3		2	1							
	227										

were found to be equally strong. Retention sutures were not used in this series.

The wide variation in the walking of the hernioplasties was due to the type of fascia available for repair and to the appraisal of the surgical technique at the completion of the operations. In those cases remaining in bed longer than three days the sutures were believed to have been tied more tightly than they should have been or the fascia available was not satisfactory. In the two cases that walked on the second postoperative day, the principles of proper surgical technique were believed to have been carried out satisfactorily. Occasionally we are stunned by a death from an embolism in a person recovering from a simple hernioplasty. These deaths can be greatly reduced by ambulation on the first or second day. By waiting until the third or fourth day, blood stasis will have occurred which will increase the incidence of the formation of thrombi.

Complications in this series from early ambulation were few. Actual figures are not available for the comparison of morbidity in a series before early ambulation was adopted. However, postoperative pulmonary atelectasis had completely disappeared in this series except in those patients with an electrolytic or serum protein imbalance. In one case, a boy of four, with a gangrenous appendicitis, the peritoneum was closed, but the rest of the abdominal wall through a McBurney incision was packed with vaseline gauze because of the danger of infection from the spill of the ruptured appendix. This patient was walking the second day which should not have been permitted. He developed a severe pain and a slightly elevated temperature the following day. After complete bed rest for two days the temperature was normal and the pain disappeared. Since nearly all of the anesthesias were subarachnoid blocks, spinal headaches

were more frequent, but these are not complications attributable directly to early ambulation. There were no abdominal wound disruptions, pulmonary embolisms, pulmonary infarcts, or hernias. Abdominal distention was nearly absent. By early ambulation a major operation was made a minor one for the postoperative period. The patient was happier and more comfortable because he could care for his own wants in the hospital; he never developed the appearance or feeling of weakness usually experienced after the average postoperative confinement to bed; he requested discharge from the hospital sooner; and he returned to his work earlier than before. Consequently, by making early ambulation a part of the physiological basis of surgical practice, major surgery has been simplified for the patient, the hospital, and the doctor.

SUMMARY

1. A series of 214 abdominal operations with early ambulation is reported.
2. The primary principle of operative care is to maintain preoperatively, to disturb operatively as little as possible, and to restore postoperatively as soon as possible, the normal physiological processes of the body.

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Observations with Penicillin*

NILS P. LARSEN, M.D.

Honolulu

After hearing the report of the 30 cases presented by Dr. Johnson, I think no matter how antagonistic we might have been toward the use of crude penicillin, we must admit that these cases did clear up as quickly or more quickly than they usually clear with any other treatment. Impetigo, as we all know, tends to continue over a prolonged period and tends to spread unless it is treated. It seldom heals spontaneously. Since it is a surface infection it makes an excellent experimental condition from which to get an answer to the question—does crude penicillin have any effect on infections?

PENICILLIN-INOCULATED DRESSINGS

Rather than give the details of the 23 cases treated with crude penicillin that I have to report, I will merely give the diagnosis and the result as reported by the doctor treating the case. For these observations and comments I am indebted to Drs. Dunn, Warshauer, Johnson, Judd, Craig, Wall, Gotshalk, Strode, Halpern, Stewart, Liljestrang, Chock and Balfour.

Four patients were failures, and showed no improvement.

Good results were reported as follows:

CASE 1. Large infected wart. After 4th pad infection completely gone.

CASE 2. Bullous impetigo. No pus seen after 2nd day.

CASE 3. Infected blister. Well after 2nd day.

CASE 4. Burn. Inflamed and infected. No pus after 1st application, redness decreased.

CASE 5. Chronic osteomyelitis of right hip with sinus. Crude penicillin into cavity every 3 hours, 5 to 10 cc. Gram positive organisms disappeared after the first days. Discharge decreased and sinus closed.

CASE 6. Osteomyelitis with open wound. Responded very well. Sinus closed.

CASE 7. Carbuncle. No redness after 48 hours.

CASE 8. Infected incision from a Caesarean. After 4th pad discharge practically gone.

CASE 9. Trichophyton infection with staphylococcus infection superimposed. No discharge after 3rd dressing. No effect on trichophyton.

CASE 10. Carbuncle. Excellent results after 48 hours.

CASE 11. Empyema of left chest. 20 cc. every 4 hours. Pus cleared, cultures became negative within the first 2 days.

CASE 12. Infection in a diabetic, staph. aureus. Cleared very well but may have cleared anyway.

CASE 13. Paronychia. Redness gone in 24 hours.

CASE 14. Impetigo. Sulfathiazole ointment one side, penicillin pads on the other. Both lesions cleared in 4 days.

CASE 15. Huge carbuncle on back with diabetes, staph. aureus. Opened; with Carrel-Dakin tubes crude penicillin instilled every 3 hours, 5 to 10 cc. Condition of wound looked much better but progress seemed slow.

CASE 16. Large varicose ulcer. Wound looked clean, discharge stopped.

CASES 17. and 18. Two cases of sulfa-resistant gonorrhoea were tried. Solutions were instilled every 3 hours. No irritation. No dramatic effect.

CASE 19. Infected leprous ulcer. Ulcer present since 1936. After 3 days of first application wound looked cleaner. One month after onset, about half its original size. Patient applied about 25 cc. of crude penicillin himself daily. All kinds of ointments, including sulfa drugs, had been tried without result. The following month the ulcer again began to enlarge and now the smear showed gram negative bacilli and apparently *B. pyocyaneus*.

We believe the evidence suggests strongly that crude penicillin has a definite place in the treatment of open or sinus tract infected lesions.

CRYSTALLINE PENICILLIN

The second part of this paper has to do with the treatment with pure crystalline penicillin. Tubes containing 100,000 units each of pure salt were furnished by the National Research Council. For this study and the observations recorded I express my appreciation to Drs. Richert, Bell, Halford, Nance, Strode, Lau, Yang, Devereux, Stewart, Cloward, Kat-suki and Yamashita.

Details will not be given. This series is interesting since it illustrates a type of research which may well give more quickly the answers we seek as to the use of a new drug, its abuse, the results or lack of results and the reasons therefor. It may give us this more quickly than the results obtained in an excellent, well-controlled, scientific laboratory or hospital. In such a laboratory everything is done so carefully that few mistakes are made. The case is so carefully watched that improvement may come from that alone. The shortcomings or the abuse of the drug may not so easily be discovered. The comments of doctors in practice in a community may give a better spread of evaluation than could be obtained under more select study.

Treatment on this series of 15 cases, most of them desperate, was administered in 4 different hospitals and under the observation of 13 doctors.

CASE 1. Hemolytic streptococcus, positive blood culture. 20,000 units every 3 hours intramuscularly. Total dosage over 600,000 units. Result excellent. Patient seemed at

* Read before the Fifty-fourth Annual Meeting of the Hawaii Territorial Medical Association, May, 1944.

point of death when treatment was started. Organisms disappeared quickly from the blood stream. Patient still sick with a localized embolic abscess of the lung. (Later patient coughed up abscess and made an uneventful recovery.)

CASE 2. Abscess of lung. Dose of 400,000 units given over a prolonged period, instilled into the wound 3 or 4 times daily. Wound culture became negative. No startling results.

CASE 3. Acute pyelocystitis. Treatment with penicillin began on the 63d day of illness. Temperature at time of first injection 104 F.; 300,000 total units. Recovery dramatic.

CASE 4. G. C. urethritis. One and a half years of failure with all sulfa drugs. Six hot box treatments. 20,000 units every 4 hours I-M. 200,000 units given. Complete cure.

CASE 5. As a contrast, G. C., acute gonorrhea, 9 days duration, treated at Naval Hospital; 20,000 units every 3 hours, total 140,000 units. Discharge stopped, negative smears for 3 days. Patient discharged but returned with acute disease to a doctor in town. Put on sulfathiazole, fairly large doses. Complete cure.

CASE 6. Osteomyelitis of both femurs. 1,152,500 units given. Result, infection localized to both femurs, seems to be clearing.

CASE 7. Pneumonia, treated on 8th day, doing badly; seemed as though on the point of death. 20,000 units every 3 hours IM. 200,000 units given. Dramatic drop of temperature from 103.8 F. with recovery. But—culture obtained was Friedlander bacillus. Penicillin has no effect on Friedlander. Probably the drug had no effect and this was probably a remarkable coincidental cure.

CASE 8. Infection of an unknown internal focus, fever for some 3 weeks, patient doing very badly. 560,000 units given. Relief with disappearance of temperature.

CASE 9. Post-partum sepsis, massive pelvic infection with probable peritonitis. Patient looked as if she would go on to death. Staph. aureus. Local instillation of crude penicillin every 2 hours, and 10,000 to 20,000 units of pure solution given IM every 3 hours. 390,000 units. Dramatic recovery; also prompt cessation of massive pelvic pus discharge.

CASE 10. Staph. albus. General staph. septicopyemia. 20,000 units started I-V; 10,000 given IM every 3 hours. 100,000 units. Patient went on to death.

CASE 11. Osteomyelitis with destruction of head of the femur. Staph. aureus. 10,000 units every 3 hours given IM beginning day before operation. Patient shot post-operative septic temperature for 3 days. First dressing 4th day post-operatively showed no pus. Remarkable result.

CASE 12. Pneumococcus meningitis with brain abscess which had been opened. 10,000 units I-V, 10,000 units I-S. In first 24 hours from a condition where death threatened—opisthotonos, unconscious, temperature 105°—temperature dropped to normal. Continuous I-V. After first instillation of penicillin intra-spinaly, the spinal fluid culture, which had been positive with pneumococcus type XIV, became negative. (This case eventually died; had developed internal hydrocephalus with thick fibrinous exudate at the base of the brain. The fluid in the ventricles was clear.)

CASE 13. Peculiar unknown type diffuse periostitis. Result not striking, but temperature promptly came to normal where it had not been for months.

CASE 14. Staphylococcus dermatitis, severe and incapacitating over a period of years. Every type of treatment had been tried in many different clinics. First course of 600,000 units gave rather disappointing results. Second course, 400,000 units, associated with ointment made up with the pure penicillin, produced a return to normal that was dramatic. Patient is still completely well one month after discharge

from hospital. Dr. Johnson made up and applied the ointment. He also recommended that the ointment be carried with the patient, and whenever he saw the slightest sign of a staph. pustule, apply it immediately. Patient evidently had developed a severe allergy to staphylococci. I had watched this patient since he was a small child, when he had severe asthma and hay fever, so he was a known sensitivity type, hence this was a doubly difficult problem. The results were very dramatic.

CASE 15. Hemolytic streptococcus, empyema thoracis. 40,000 units daily for 4 days instilled into empyema, 20,000 units daily for 2 days. 200,000 units total. Treated for 29 days before penicillin; after 6 days, dramatic results. Culture of chest fluid became sterile rapidly.

This series might well be a cross-section of how penicillin will be used when sufficient is available.

COMMENT

(1) The danger of producing penicillin-fast bacteria is fast filling journal space. It has been stated that if too little penicillin is given to kill the organisms it will produce an organism that cannot respond to penicillin. To change the basic characteristic of bacteria is extremely difficult. In any large massive growth of organisms, for instance in the blood stream of an individual or an animal, varieties might develop that have different characteristics from the original parent stock. Some of these might be penicillin-resistant. If such a sport variety remains growing, eventually if all others are killed, this resistant variety will become dominant. I believe this is what occurs rather than that the organism itself is changed by the penicillin. The present evidence is not sufficient to warrant the conclusion that penicillin used in small doses will change the basic organism and make a penicillin-sensitive organism become a penicillin-resistant organism.

(2) Because penicillin is so dramatic, we should not forget that the sulfa drugs are still a great triumph of our present century in the treatment of various infections. It has already been shown that penicillin-resistant organisms are not necessarily sulfa-resistant; also, that penicillin and sulfa drugs may be used together.

When penicillin works, it works very dramatically. When we do not get a dramatic result we should stop to consider (1) are we dealing with a penicillin-fast organism, or (2) are we giving sufficient to overcome the infection.

We have made some studies, with Mr. Weller of the Experiment Station doing the laboratory work, to see how quickly penicillin will disappear from the blood stream. We report as follows:

Five thousand units given intramuscularly show no penicillin present from 15 minutes to 4 hours in blood or sputum (case of lung abscess). However, large quantities of penicillin appear in the urine in 15 minutes and are still there after 4 hours. In the same patient, 20,000 units were then given intravenously. After 15 minutes a good penicillin level showed in

the blood, but in 1 hour this was completely gone. In a case with meningitis, 8 hours after giving penicillin intra-spinaly the spinal fluid still showed a level of penicillin, and also large quantities of penicillin in the urine.

The National Research Council has reported on 500 cases that penicillin gives high effectiveness in staphylococcus, gonococcus, pneumococcus, and hemolytic streptococcus infections, including those resistant to sulfonamides. The results in bacterial endocarditis were disappointing.

A few quotations from the literature may be of interest. "A trace of penicillin in the serum was as active against the organism studied as 5.1 mg. of sulfadiazine per 100 cc. of blood." "Saliva, bile, and succus entericus do not inactivate penicillin but normal gastric juice rapidly destroys its anti-bacterial properties. Also apparently the bowel contents interfere with its activity."

"Penicillin in vitro proved more potent, weight for weight, even than sulfathiazole against hemolytic streptococci and staphylococci."

"Need per patient was 3.45 to 7.2 gms. given at the rate of 1 gm. per day intravenously. Complete bacteriostasis was shown by a solution of 1/500,000 penicillin, whereas with saturated aqueous solution

of sulfathiazole and sulfapyridine bacteriostasis was incomplete. It was less toxic to leucocytes than sulfonamides. It was found that urine of treated patients could be used again for injection into other patients without ill effect."

"Pure solution of penicillin inhibited staphylococcal growth completely 1/5,000,000 dilution, and partially in 1/16,000,000 dilution."

"Penicillin has the power of diffusing into infected and dead tissue."

"Experimental evidence suggests that penicillin will be strongly effective in gas gangrene, Weil's disease and early syphilis." "Results were best when 10,000 units was given every 2 or 3 hours at the start by continuous I-V injection or by interrupted I-V or I-M injection. Best results when treatment was continued at least 10 to 14 days." "In gonorrhea, sulfar-resistant G.C. was cured in 48 hours with from 100,000 to 160,000 units."

Over 300 papers have already been extracted from the literature. It seems safe to conclude, penicillin is a therapeutic agent of amazing effectiveness against certain bacteria, with less toxicity than any valuable therapeutic agent yet discovered. It undoubtedly will become one of our major aids in combatting bacterial infection.



Murine Typhus Fever and Pregnancy:

A CASE REPORT

G. C. MILNOR, M.D.

Honolulu

Flea borne typhus fever, "Brill's Disease," has been known to be endemic in Hawaii since 1933, when Dr. E. A. Fennel¹ in September of that year reported the first proven case. It was probably present but unrecognized long before this. Two cases of louse borne typhus off shipping were seen at The Queen's Hospital in 1914 by Dr. Jackson, who was resident physician at that time.

The incidence of the disease seems to be increasing. One hundred and forty-nine cases were reported during the calendar year of 1943. One hundred and fifteen of these were on the Island of Oahu. This is twice the highest total reported in any previous year. During the last six months of 1943, 121 cases were reported.

In 1943 there were 11,672 births in the Territory, 6,900 occurring in Honolulu. It is surprising that the following case is the first reported instance of the disease occurring during pregnancy.

CASE REPORT

Mrs. E., age 28, para 2, was first seen at the second month of her pregnancy. Examination showed everything to be normal and her past history, including the first pregnancy and delivery, was negative. She progressed normally through the remaining months of observation until the afternoon of December 12, two weeks before the estimated due date. At this time she suddenly became weak and complained of vertigo, headache, some nausea and was unable to continue her housework. The next morning she came to the office for examination. The headache was worse and was confined to the occipital region. Nausea was still present and she felt much more prostrated.

Examination showed that the temperature was normal. Blood pressure was 110/90 with a heart of rate of 140. The urine contained 3 plus albumin with no pus cells or casts. There was no rigidity of the neck and the reflexes were normal. The fetus was active and its heart sounds were normal in the ROA position. There were no labor pains. The dengue epidemic was at its height at the time and a diagnosis of this disease was thought of, as well as an acute toxemia before this.

The patient was hospitalized for observation and treatment. The following day the temperature was 100 F. The headache was much worse; chills and severe muscular pain began. The urine contained no albumin. The blood showed 8,600 white cells, 4,310,000 red cells, with 82 per cent polymorphonuclears. Blood culture on the fourth day of the illness was negative. There were 3,330,000 red cells, 7,550 white cells and 71 per cent polymorphonuclears. The urine was negative on the fifth day, and Widal and Weil-Felix reactions were negative. On the seventh day the Weil-Felix was positive, 1:1600. The diagnosis of typhus fever was then established and for two weeks the patient was acutely ill as shown by the pulse and temperature chart (Fig. 1).

Severe headache, muscular pain, neck rigidity, rapid pulse, septic temperature, profuse sweats, marked prostration, chills, cyanosis and a very bothersome cough were the chief symptoms during this time, along with semi-delirium at intervals. The typical typhus rash appeared, mostly on the abdomen and limbs, on the sixth day of illness. The rash gradually subsided in the course of a week, after reaching its height on the eighth day. Rales were heard in all lung areas. The cough became productive after a week. The heart sounds and movements of the fetus could not be heard or felt after the fourth day of illness and the silence continued up to the hour of delivery.

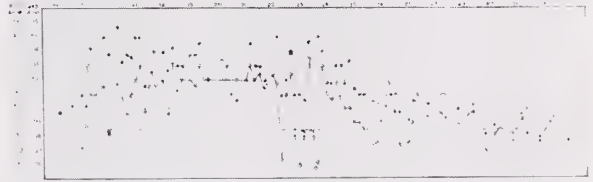


Fig. 1. Patient's temperature and pulse from Dec. 14 to Jan. 2

On December 25, the estimated date of confinement, she went into spontaneous labor and at the end of four hours midforceps were applied to a transverse head. Rotation was easily accomplished and after rotation the forceps were removed. An hour later the head came down in an occiput position and spontaneous delivery occurred.

The child, a female, weighing 8 pounds, was born alive, but was in poor condition. Its breathing was rapid and labored and cyanosis was noticed. Auscultation over the chest revealed diffuse fine crepitant rales. It died in 21 hours. Cord blood taken at the time of delivery showed a negative Weil-Felix reaction. Autopsy findings were as follows:

The pathological changes were confined to the lungs. Both lungs floated in water. Both were sub-crepitant throughout and covered with small, slightly elevated, more or less sharply circumscribed yellowish-white patches varying in size from a few millimeters up to 1 cm. in diameter. The cut surface was generally uniform in color but exhibited numerous very fine nodules to palpation. There were no recognizable areas of pneumonic consolidation. The tracheo-bronchial tree contained a small amount of frothy mucoid material.

The microscopic sections revealed a picture somewhat difficult of interpretation. There were no findings suggestive of pneumonia in the usual sense of the word, that is, there was no leucocytic infiltration. A great many of the bronchioles contained peculiar pink-staining fibrinoid material and some of the adjacent alveolar spaces contained similar material. The involvement was patchy in location with areas of plugged bronchioles and alveolar sacs alternating with areas of normal lung tissue. This no doubt accounted for the nodular appearance noted upon the gross examination. In several fields peculiar "fibrin rings" were present

at the periphery of the alveolar sacs suggestive of virus pneumonia. A number of the bronchioles were ruptured with extrusion of the contained fibrinoid material into the surrounding alveolar walls and sacs. Several sharply outlined patches of emphysema were present just beneath the pleura, the "yellow" patches observed on the surface of the lungs. The amorphous material within the bronchioles had a peculiar somewhat laminated appearance not found in ordinary coagulated edema fluid.

Special fixation and Giemsa stains for rickettsia bodies were negative. However, lack of experience in this type of work and lack of control tissue make the results of questionable value.

The sections were shown at the Queen's Hospital slide conference and the findings were thought suggestive of "virus" or "atypical" pneumonia. The appearance of the material within the bronchioles and alveoli suggested aspirated amniotic fluid, vernix caseosa and other fetal debris. Some support for this is derived from the finding of similar material in two subsequent cases, one a baby who died of pneumonia several days after birth, and one a stillborn. In the present state of our knowledge the question must be considered an open one.

The post partum course was normal. Fever lasted six days after delivery.

DISCUSSION

The question arises whether it would not have been wiser to induce labor as soon as the diagnosis of typhus fever was made in a case so near term. Personally, I feel that both mother and child would have been benefited by such a procedure. Surely a very ill mother would be greatly relieved, especially by the reduction of pressure on the diaphragm, making respiration more normal. It should also benefit the heart action. Removing the fetus from such an abnormal environment might have prevented its death. Delivery, I believe, would have been just as well tolerated early in the course of the disease and perhaps even better than at the end when the patient was greatly weakened by the infection. I would not hesitate to recommend induction of labor in typhus fever, for a patient near term.

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Transfusion Therapy in Surgery and Its Relation to the Blood Bank*

ROGERS LEE HILL, M.D.

Honolulu

The recent practical development of the blood bank has stimulated a great interest in blood transfusion. This was made necessary by the exigencies of the present war, and so much has been written on the subject, that one certainly shows no lack of temerity in attempting to discuss it before this audience. However, certain practical observations have been made that make it advisable to review this important subject of the use of blood or its derivatives, as related to surgery.

HISTORY

The use of blood as a therapeutic measure was advocated as early as the middle ages. Andreas Libavius, in 1615, was the first individual to advocate the transferral of blood from one person to another. Richard Lower, in 1665, successfully kept exsanguinated dogs alive by transfusion of blood from other dogs. Two years later Denys and Emmerez successfully transferred nine ounces of blood from a lamb to the vein of a young man. On their fourth attempt a fatality resulted and the operation was prohibited by a French court. For the next 150 years little interest was shown in the procedure. James Blundell, in 1818, devised a crude apparatus for blood transfusion in an attempt to alleviate post partum hemorrhage. This served as a stimulation to the many workers who gradually perfected the method to date.

W. S. Halsted practiced "Refusion or Reinfusion of Blood in Hemorrhage" in 1881. Incidentally, by his own admission, this was his first published contribution to surgery. He saved his sister's life by arresting a post partum hemorrhage and transfused her with his own blood. This occurred six years after his graduation in medicine.

Landsteiner, in 1900, showed that the serum of one human could agglutinate the cells of another human, and he later defined the major blood groups. In 1914, Agote performed the first transfusion with citrated blood, and the next year Lewisohn successfully adjusted the dosage and made the process non toxic.

World War I gave great impetus to the use of blood transfusion, and particularly the citrate method.

The next great forward step in transfusion therapy was the formation of The Blood Transfusion Betterment Association of New York City. The association was founded in 1929 and served to regulate the professional donor as well as supply him. In 1930,

they supplied 3,125 donors to recipients of New York City; by 1937 this increased to 9,280. They also conducted investigations and experiments which greatly advanced the science of blood transfusion. This successful association served as a stimulation for the formation of similar organizations, and the more widespread use of the professional donor.

WHOLE BLOOD VS. PLASMA

Great interest was revived in transfusion therapy by the work of Blalock and Phemister. They pointed out the importance of concealed hemorrhage and the regional loss of fluid from the blood stream, in the causation of traumatic shock. This new theory on the pathogenesis of shock has been responsible, in part, for the use of various blood derivatives: refrigerated plasma, frozen plasma, desiccated plasma, suspensions of red blood cells and various preparations of purified albumin and globulin. There is no doubt that each has a place in surgical therapy. The efficacy of each will depend upon the careful clinical and experimental observations of many workers.

There should be close cooperation between civilian and military physicians in order to arrive at more definite conclusions as regards the causation and treatment of shock.

There seems to be considerable difference of opinion at present over the relative effectiveness of whole blood and its derivatives, in the treatment of shock. The pathogenesis of shock is poorly understood, and it may well be that many factors as yet undiscovered will decide the course of treatment.

The most important observation to be made in the treatment of shock, I believe, is a clinical evaluation of the patient's condition after the administration of blood or one of its derivatives. In the civilian hospitals of Honolulu we have been greatly disappointed in the patient's response to plasma, and have seen very little improvement after the administration of large amounts. On the other hand, the response to whole blood has been quite dramatic and constant, unless hemorrhage and plasma loss are continuing rapidly. This has been such a constant observation that whole blood is now used almost exclusively in preference to plasma or some other blood derivative. The single exception is in the treatment of burns where, I believe, large amounts of plasma are necessary; it should be given early and should be over several days. At the end of two or three days a certain amount of anemia develops which makes transfusion of whole blood advisable.

* Read before the Fifty-fourth Annual Meeting of the Hawaii Territorial Medical Association, May, 1944.

Evans states, "In our more recent enthusiastic acceptance of plasma infusions in the therapy of traumatic shock, surgeons have tended to forget that red blood cells, as well as plasma, are lost from the blood stream in traumatic injuries." He shows in experimental work that there are apparently no reserves of red cells available for replenishment either in the case of emergency or for three to four days following trauma. Therefore, proper replacement therapy for shock caused by trauma or acute hemorrhage calls for whole blood, not plasma alone.

I realize in making these statements that I am drawing from conclusions arrived at through close association with a large amount of available banked blood of which there is an ample supply of all types in each of the hospitals of Honolulu at all times. The ease with which it may be obtained has reduced the surgical mortality rate markedly, both in the elective and emergency type.

It is obvious that what has been said cannot apply to many branches of the military service. The preservation of whole blood is satisfactory for civilian blood banks but unfortunately has not as yet been developed sufficiently to allow shipment to the battlefronts. The escape of hemoglobin and potassium from the red blood cell, either by rupture of the cell or diffusion, makes the citrated blood toxic after a few days. Clinical and experimental evidence place the maximum preservation time of stored blood at seven days. While this may vary in different bloods, there is sufficient potassium and hemoglobin in the plasma, beyond this preservation time, to make it deleterious to the recipient. It is to be hoped that in the near future methods of preservation will be developed that will prevent the escape of potassium and hemoglobin and allow whole blood to be preserved for a longer period of time.

It is my belief that there is some vital factor in whole blood as yet undiscovered which either neutralizes the toxic or neurogenic cause of shock or prevents capillary permeability in addition to restoring blood volume.

A large amount of work has been done on the different blood groups and blood compatibility. The Rh factor has been discovered and reactions have been reduced to a minimum by elimination of pyrogenic organisms and more careful attention to technic and equipment used.

The controversy over the method of transfusion has somewhat subsided with the practical development of the blood bank. The ease with which citrated blood may be obtained and the simplicity with which it may be given offset any slight toxic factor it may contain.

An outstanding contribution to the science of blood transfusion was made by Witebsky et al. They isolated group specific substances "A" and "B," and by adding these substances to "O," or universal

blood, they effected a reduction or even an elimination of antibodies anti-A and anti-B. Universal blood, thus conditioned, may be used without previous typing or cross matching. This is invaluable in an emergency when blood is urgently needed.

In surgery the major use for blood transfusion is combating or preventing shock. The other indications and uses are so diverse, they will not be discussed here. In the treatment of shock blood should be given early and in sufficient amounts. It is advisable to give it before the blood pressure drops to the danger level. The sudden loss of more than one-third of the blood may result in death unless immediately replaced. A state of irreversible shock is produced, if the interval between blood loss and replacement is prolonged. On the other hand, an individual may withstand the loss of two-thirds of the total blood volume if hemorrhage is slow. Unfortunately, no accurate laboratory test has been developed, in my estimation, which will correctly determine the degree of shock or the amount of blood lost. Hematocrit readings and hemoglobin determinations are not too reliable and are time-consuming when speed is an important factor. It is unfortunate that there are no constant signs of early traumatic shock but the most reliable are blood pressure, pulse rate and volume, cold extremities, sweating and thirst.

An important contribution to major surgery has been made by the use of blood at the onset of a major operation in anticipation of shock. This has been particularly true in gastric surgery where long tedious dissection requires prolonged anesthesia and entails the loss of much blood. It is not infrequent to use three or four transfusions during one operation. Considerably more blood is lost during an average operation than is usually realized and its replacement is necessary to maintain the proper condition of the patient.

The amount of blood required depends upon the patient's condition. Unless there is evidence of pulmonary edema a pint may be administered in ten minutes. This may easily be repeated if the desired effect has not been obtained. It may be difficult to administer a pint in this time by the citrated method, but if necessary two or even four transfusions may be given at the same time. Whitby and his associates believe that a rise of 10 to 20 mm. of mercury can be anticipated for every 540 cc. of blood used provided bleeding has ceased and there are no other causes for plasma loss.

Criticism of the toxicity of sodium citrate may be eliminated by the fact that 6 to 8 gms. may be injected intravenously over a ten-minute period without producing symptoms. It is rapidly oxidized and excreted, 90 per cent being removed in ten minutes. Transfusions of 2500 cc. of blood contain only 6.25 gms. of sodium citrate which is considerably less than the toxic dose.

The development of the science and technic of blood transfusion has been painfully slow. From the time Richard Lower first performed animal transfusions there have been many developments responsible for the ease and simplicity with which it may be accomplished today. While this operation is not free from danger, investigation has revealed a mortality rate in a large series from 0 to .5 per cent. Many of these deaths are preventable, provided sufficient care is taken in the conduct of all phases of the procedure. The nonfatal reactions reported have been significantly higher but can also be reduced to the minimum by an exacting technic.

The greatest development in the past few years, in my estimation, has been the blood bank. You are all familiar with the growth, function and value of the Honolulu "Peacetime" Blood Plasma Bank. It is essential to the present surgical practice in Honolulu if we expect to maintain the low morbidity and mortality rate we have achieved since it was developed. No one can appreciate more than the surgeons the value of having available a constant supply of blood of all types at all times.

Bloods are distributed to local civilian and service hospitals with tubes attached which contain the cell suspension and the serology serum. There they are available for use at any time, day or night. The cross-matching is done by the hospital technicians. There are usually from 60 to 70 bloods distributed among the various hospitals at all times. Each hospital has on hand ampoules containing 10 cc. of *A* and *B* specific substances for conditioning "O" blood. The blood is allowed to remain in each hospital for a period of 72 hours. At the end of this time it is recalled and the plasma removed for storage. By this method a constant supply of stored blood is present in each hospital at all times. If the particular blood type desired is not available, conditioned universal blood may be prepared in a few minutes by simply adding 10 cc. of *A* and *B* specific substances.

The following table shows the use by the various hospitals of whole blood, concentrated red blood cells

TABLE 1. *Types of Blood Used*

HOSPITAL	RBC TR.O	O	A	B	AB	PLASMA	TOTAL BLOODS
Aiea	38	20	7	2	40	67	
Childrens	3	54	59	20	13	236	146
The Clinic	1	2	3	.....	.....	6	0
Kalaupapa .....	.....	.....	.....	.....	.....	10	0
Kapiolani	7	4	36	20	15	2	43
Kuakini	10	2	72	126	30	48	68
Leahi .....	.....	16	19	11	1	12	47
Polio-myelitis .....	.....	.....	1	.....	.....	2	1
Queen's	36	69	663	646	244	88	486
Sacred Hearts	3	1	62	57	19	3	38
St. Francis	2	15	155	140	77	30	55
Shriners .....	.....	4	2	2	2	3	10
Service Hospitals (Since Oct. 1, 1943)	8	37	41	19	.....	474	105
Waialua .....	.....	.....	.....	.....	.....	6	0
Waipahu .....	.....	.....	2	.....	.....	10	2
	61	99	1138	1135	447	189	1483
Total Whole Bloods.....						3008	doses
Total Plasma						1483	doses
Grand Total						4491	doses

and plasma for the period August 1, 1942 to February 29, 1944.

Since March of 1943 all reactions to either whole blood or plasma have been studied by a physician on the staff of the Blood Bank. For the year ending February 29, 1944, reactions reported and investigated were as follows:

TABLE 2. *Reactions*

	DOSES	REACTIONS	% REACTIONS
Blood	2231	Pyrogenic 78	3.6
		Urticarial 39	1.8
		Hemolytic 5	.22
			5.62
Plasma	880	14	1.6

The major source of blood for transfusion therapy in the United States has been, in the past, the professional donor, the cost varying \$25 to \$50 per 500 cc. of blood. This cost to the family or institution at times becomes economically prohibitive. In 1939, one large municipal hospital paid \$14,825 to professional donors for urgent transfusions. This undue burden has been removed in this community with the development of the volunteer or replacement system which permits unlimited use of transfusions.

The following table is a report of transfusions done at the Queen's Hospital during 1943:

Table 3 is a report of transfusions done at the Queen's Hospital during 1943 which, I think, compares favorably with any mainland hospital of comparable size. It also emphasizes the fact that fewer reactions can be expected from banked blood than from donor blood. This can be explained by the fact that the individual donor to the blood bank is more carefully examined and prepared for the transfusion. There is a definite increase in the use of conditioned blood in urgent cases. In surgery, plasma is rarely used, only once or twice a month, and occasionally in the emergency room. The observation that whole blood is superior to its derivatives in the majority of cases has been made by practically the entire staff of Queen's Hospital. The following case reports illustrate the value of having available a constant supply of stored blood.

CASE 1. J. U., a young Japanese male, was admitted to Queen's Hospital May 28, 1941 with a history of a bleeding peptic ulcer. He was in need of blood, and donors were obtained from the family. Two hundred c.c. of blood was given three hours after admission and another 225 c.c. four hours later. He continued to vomit bright red blood and was given repeated small transfusions. On May 30, 1941 operation was performed and a large gastric ulcer was found on the lesser curvature. A simple resection of the ulcer with ligation of the left gastric artery was done and during the course of the operation, 1100 c.c. of blood was given. This was started before the operation and was continued throughout. Recovery was satisfactory.

Comment: Donor blood was difficult to obtain, necessitating delay in transfusion. At the present time this difficulty would be eliminated because there is an ample supply of stored blood available. Clinical experience has proved that the transfusion of blood is a life-saving measure in bleeding ulcers and does not precipitate a recurrence of the hemorrhage.

TABLE 3. *Report of Transfusions—1943, Queen's Hospital, Surgery Dept.*

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Total Transfusions	90	120	108	106	119	96	111	87	98	97	103	101	1236
Total Reactions	5	7	4	4	12	8	8	7	10	7	5	13	90
% Reactions to all Transfusions	5.5	5.8	3.6	3.7	10.08	8.3	7.2	8.04	10.2	7.2	4.7	12.8	7.2
Banked Blood (Transfusions)	74	106	92	89	105	80	93	75	84	92	102	101	1095
Reactions	5	7	3	3	12	5	6	6	6	7	4	13	77
% Reactions to X Banked Blood	6.7	6.6	3.2	3.3	11.4	6.2	6.4	8.0	7.1	7.6	3.9	12.8	7.03
Donor Blood (Transfusions)	16	14	16	17	14	16	18	12	12	5	1	0	141
Reactions	0	0	1	1	0	3	2	1	4	0	1	0	13
% Reactions to X Donor Blood.....	0	0	6.2	5.8	0	18.7	11.1	8.3	33.3	0	100	0	9.2

CASE 2. D. K., a Hawaiian male, another pre-war patient, was admitted to Queen's Hospital following an accident in which a heavy truck wheel passed directly over his abdomen. He was in a state of severe shock. Blood pressure was not obtainable, the pulse rate was very rapid and barely perceptible. The abdomen was board-like and the lower right ribs and pelvis were obviously fractured. Catheterization of the urinary bladder revealed frank blood. Plasma was available and he was given large amounts without appreciable effect. Some difficulty was encountered in obtaining donors, necessitating a delay of two and one-half hours. On the administration of the first transfusion he began to show definite improvement. It was thought likely that he had a continuing concealed hemorrhage. Operation revealed a lacerated, bleeding liver that could only be controlled by packing. The bladder was lacerated intraperitoneally and the posterior urethra was badly torn. Suture and drainage of the bladder was performed. He received 1250 c.c. of blood during the operation and 1000 c.c. during the next two days. Blood pressure at the end of the operation was 150/70. Convalescence uneventful, except for a stricture of the urethra, which is now dilated to normal size.

Comment: Plasma had little apparent effect on the patient's condition. Blood infusion, during the operation, allowed the successful completion of a major procedure on a poor risk patient. There was not only a large amount of blood lost, but also considerable plasma loss into the tissues.

CASE 3. I. T. was a young Japanese male, with badly crushed and partially amputated legs received from bomb fragments on December 7, 1941. He was first seen in severe shock which failed to respond to large amounts of plasma. A rapid bilateral high amputation above the knees was performed. His condition remained critical until four hours after admission, when blood was first obtained and given to him. After 1000 c.c. he began to show definite improvement and after another 500 c.c. on the ward, his blood pressure was 100/70 and he appeared to be in good condition. His convalescence was somewhat prolonged by infection in both stumps requiring another operation. He is now completely recovered.

Comment: We lost two bilateral amputations for severely crushed legs because of inadequate preparation for the treatment of severe shock. The availability of a large amount of stored blood and an efficient organization for proper distribution, will prevent a repetition of this incident.

CASE 4. A young white soldier was admitted to Queen's Hospital several months after the war began. He had received a severe laceration of the neck in a motorcycle accident. There had been much loss of blood and he was still bleeding profusely at the time of admission. The large arteries and veins were clamped with hemostats. His condi-

tion was critical. Blood pressure was not obtainable and the pulse was barely perceptible, weak and thready. He was unconscious, cold, clammy and perspiring freely. Plasma was started immediately with no apparent effect. He was given 500 c.c. of blood with no change in his condition. Another 500 c.c. of blood was started in the opposite arm and 500 c.c. in one of his legs. In about fifteen minutes his pulse began to show slight signs of improvement and one hour later his blood pressure was 90/50. The vessels were then ligated and the wound packed with sulfanilamide powder, with no attempt made to suture. He was sent to the ward and 500 c.c. more blood given. The next morning he was conscious and during the day was transferred to a military hospital in good condition.

CASE 5. L. V., a young Filipino male, was admitted to Queen's Hospital following a stab wound of the abdomen. He was in a state of mild shock; blood pressure was 80/40, pulse weak and rapid. A loop of colon presented itself through the laceration. Exactly eighteen minutes after admission he was receiving a blood transfusion. His condition began to improve rapidly and he was taken to the operating room. Exploration revealed a lacerated transverse colon, which was sutured. A few severed mesenteric vessels were ligated. Five hundred c.c. more of blood was given during the course of the operation. Blood pressure at the end of operation was 140/80 and his convalescence was uneventful.

CASE 6. H. C., a Chinese boy of 15, had many previous admissions to Queen's Hospital for gastrointestinal bleeding. He was finally operated upon and a perforation of a gastric ulcer on the lesser curvature one inch from the esophagus was sutured. He continued to bleed periodically for six months and the ulcer was resected. He began to bleed again after a short period of relief from the symptoms. He received blood transfusions as needed during the course of treatment. Since he was very uncooperative regarding his diet and the bleeding continued, it became apparent that a radical subtotal gastrectomy was necessary to effect a cure. Due to his physical build and the site of the ulcer it was also apparent that an abdominal approach was not technically feasible. Consequently, an approach was made through the bed of the 9th rib, after resection, and the diaphragm was opened widely. Practically a complete gastrectomy was performed, with some difficulty, because of the many adhesions present. Throughout the procedure he received 2000 c.c. of stored blood. He left the operating room in fair condition. The fact that he left alive is a salute to an ample supply of available blood. He recovered and is now at work, symptom free.

This case report demonstrates the economical value of the replacement system of stored blood in indigent patients where multiple transfusions are necessary. It also demonstrates the value of transfusion of blood during an operation to prevent shock. This patient received a total of twenty transfusions, or \$1,000 in value by the old professional donor method.

SUMMARY

(1) A brief resume of the history and development of blood transfusion is given.

(2) The clinical recognition of shock, and its course during treatment, is more accurate than any laboratory method used at the present time.

(3) The early infusion of sufficient quantities of blood is the most important factor in preventing irreversible shock.

(4) Conditioned O blood has been demonstrated to be safe enough so that it may be used in desperate cases instead of temporizing with plasma or some other substitute. The time saved is extremely valuable.

(5) In the absence of pulmonary edema, 2500 cc. of blood may be given rapidly without fear of citrate toxicity.

(6) Four transfusions may be given simultaneously, in desperate cases, by using different regions of the body.

(7) The superiority of whole blood over its derivatives, in the treatment of shock (with the exception of burns) has been demonstrated repeatedly. Plasma is more efficacious than the crystalloids and is the best substitute when whole blood is not available.

(8) Operations of considerable magnitude may now be performed safely with the aid of stored blood infusion throughout the procedure.

(9) The Honolulu Peacetime Blood Plasma Bank has been of inestimable value to the surgical services of this community by keeping available at all times a constant supply of whole blood of all types.

(9) It is my firm conviction that whenever practical every community should establish a blood bank, if it expects to maintain a high standard of surgical practice.

(10) The economic value to a hospital taking care of indigent patients of the volunteer and replacement method of obtaining stored blood, is a point worthy of consideration.

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EDITORIALS

THE E.M.I.C. PROGRAM—A FOOTNOTE

We have been assured again and again that the much-debated E.M.I.C. program is by no means a "foot in the door" maneuver by the national bureaucracy, and that it is to be regarded as a war-time emergency measure only, to be gracefully withdrawn in the early post-war period. Our fears that it might become permanent, and thus provide an entering wedge for the socialization and federalization of medical practice, have been gaily dismissed as foolish and reactionary.

The sheep's clothing slipped aside a little in the May issue of the *Hawaii Health Messenger*, the official monthly organ of the Hawaii Territorial Board of Health, in an article entitled "Wartime Activities in Maternal and Child Health," by Dr. Samuel M. Wishik, Director

of the Bureau of Maternal and Child Care. In this article the various wartime activities of the Bureau are described; included among them is, of course, the Emergency Maternal and Infant Care program.

The final paragraph of the article is quoted herewith; the italics are our own:

"Because each of the programs described is obviously making a contribution to the war effort it is possible to continue these activities at the present time. We hope, however, that general recognition of the lasting effect of these programs will lend them greater support. We trust that *they will not be interrupted by the end of the war but will continue into the post-war period and into the peace that will follow.*"

SURVEY OF HONOLULU HOSPITALS

In the last issue of the JOURNAL we concluded a series of articles in the *Hospital Needs* column. Each article that appeared was presented by an individual in the field covered, being in all instances where a particular institution was concerned, the director of the institution.

In the meantime the Public Health Committee of the Chamber of Commerce, upon the recommendation of the Honolulu County Medical Society, undertook to have a survey made of Honolulu hospitals, and in this issue we present the first third of the report of a survey made by Captain Lucius W. Johnson, MC, USN., together with a commentary by Dr. R. H. Onstott, USPHS.

The recommendations made as a result of this survey have generally been accepted by those concerned, and the Chamber of Commerce, with the consent of the representatives of the hospitals and professions concerned, will shortly appoint the permanent hospital committee suggested by Captain Johnson. The

huge expenditure of money entailed in the program will need to be very carefully controlled, otherwise the program may get out of balance through mismanagement and never reach completion. This governing committee will control and correlate each step and keep it in balance.

The suggestion was that "the hospital committee be made up of not more than five persons to be selected to decide priorities, control, expenditures and generally supervise the hospital program. The committee should be permanent in nature so that it can plan hospital development from year to year. It should have broad powers, so that it can make decisions on hospital policies in relation to the community interests. It should be composed of persons known to the community to be intelligent and trustworthy, broad-minded individuals who can make their decisions without being influenced by their affiliations with any institution, church or business. By this sort of control, waste, extravagance and overgrowth can best be prevented. No new hospital, or addition to an

existing one, should be permitted without the approval of this group."

This committee will call upon various interested groups to act as advisors. It may be that representatives of these groups will be organized into a larger committee for that purpose, or it may be that the Hospital Council already in existence will be expanded to include greater representation of all interests concerned with hospitals and that this strengthened Hospital Council be the official advisory body to the permanent hospital committee of five.

ALOHA, MRS. BOLLES!

Mrs. Elizabeth Bolles, real founder and Managing Editor of the HAWAII MEDICAL JOURNAL, founder and editor of its predecessor the *Bulletin*, secretary of the Honolulu County Medical Society and the Hawaii Territorial Medical Association since 1936 and their full time executive secretary since 1938, and right hand woman for every Society and Association officer throughout that period, is leaving us as this issue goes to press. We are on our own.

It would take a page merely to enumerate the services, over and above the specific ones for which she was employed and remunerated, that Mrs. Bolles has rendered to the physicians of Hawaii during her term of employment. To mention a few of the more important ones: it is largely through her efforts that the records and archives of the Territorial organization are in recognizable condition and available for inspection; that we have an orderly collection of books and journals in the Charles Adams Library; that the medical society's relations with related organizations in the community are so direct and satisfactory; and, as already mentioned, that the Territory has its own medical publication.

Mrs. Bolles plans to spend possibly a year on the mainland, most of it in Ann Arbor, Michigan, in the study of public health administration and public relations. She has been offered an opportunity to work with Dr. Sinai, there, on a study of voluntary medical service plans.

Her work here will be taken over piecemeal by a librarian, Mrs. Ethel Hill, and two stenographers, Miss Pat Hayward for the Honolulu County Medical Society, and Mrs. J. Gardner Bennett for the Territorial Medical Association and the HAWAII MEDICAL JOURNAL. Miss Ethel Tsutsui will continue to operate the bookselling service in the Mabel Smyth Building as heretofore, as Mrs. Bolles' representative.

Deeply as we regret the necessity of losing so able an assistant and fellow-worker, we cannot but feel that the Society's and the Association's officers have been helped out too much for their own good, and that it may all be for the best. The stimulus of having to do their own work for the organization, instead of merely signing it, may ultimately work for the good of all concerned.

In any event, we speak for all in wishing Mrs. Bolles a pleasant and successful and profitable sojourn, and look forward to her return, whenever it may be.

ANNIVERSARY CONGRATULATIONS TO DR. WALKER

The competent sanatorium care available for tuberculosis in the Territory of Hawaii is in large measure a result of the efforts of Dr. Hastings H. Walker, Director of Leahi Hospital for nearly fifteen years. The tuberculosis hospitals on Hawaii and Kauai are under the direction of former members of Dr. Walker's staff.

The following resolution, recently adopted by the Board of Trustees of Leahi Hospital, is reprinted here for the record.

RESOLUTION

Dr. Hastings Walker joined the staff of The Leahi Home on August 20, 1924, and will have completed twenty years of continuous service on August 20 of this year. He was Resident Physician on October 21, 1930 at the time of Dr. Sinclair's death; and on October 30, 1930 was named Director of the Hospital, a post which he has filled ever since to the great pleasure of this Board of Trustees.

In 1924 The Leahi Home had 260 patients, by 1930 the number had increased to 360, and the present patient population is 467. The name of the institution has also been changed to Leahi Hospital to denote its changed activity. We are at this time taking the preliminary steps to increase the Hospital's patient capacity to 920. Dr. Walker's association with Leahi Hospital has been one of devoted service.

BE IT THEREFORE RESOLVED that this Board of Trustees tender to him its great appreciation for the splendid services he has so efficiently rendered the patients under his care for the past twenty years, and herewith express its great pleasure at the prospect of his continued services with the greatly enlarged program facing the Hospital. Dr. Walker's untiring devotion to duty has contributed primarily to the high public esteem which our institution enjoys.

July 19, 1944

MULTIPLE ANTIGENS FOR ACTIVE IMMUNIZATION

Numerous requests for the evaluation of the present state of scientific knowledge and practical experience concerning the efficacy of multiple antigens has led the American Public Health Association to appoint a sub-committee on multiple antigens with Dr. Haven Emerson as chairman. A report of the study committee appears in the American Journal of Public Health, Vol. 34, No. 5, for May, 1944, pages 452-454, excerpts from which are given here for the information of all concerned. Italics are our own.

Present experience indicates that non-living antigens combined with alum are better immunizing agents than non-living antigens suspended or dissolved in plain diluents. The proper spacing of the individual immunizing injections is of great importance in developing maximum immunity, as is also the route of the injection.

Information is at present sufficiently definite and convincing to justify the statement that *immunization against scarlet fever as a routine or community-wide practice under official auspices is inadvisable until a more suitable antigen becomes available.*

On the basis of the above impressions, the use of pertussis vaccine and diphtheria and tetanus toxoids, either singly or in combination, is considered acceptable prophylactic practice for the immunization of children in normal civilian life, *except a pertussis-tetanus combination.* There are other antigens, as for example smallpox vaccine, which *must always be administered singly.* Antigens intended to provide protection against special hazards may be administered singly or in combination, dependent upon the need.

Our present knowledge of immunization procedures through active immunization warrants the following recommendations:

a. Diphtheria—Administration of the prescribed dosage of plain or alum precipitated toxoid without preliminary Schick test, preferably not later than 6–12 months of age; otherwise as soon thereafter within the preschool age as possible. Repeat or booster dose on school entrance, sooner when indicated. Immunization of younger school children without the use of the Schick test is indicated if toxoid has not been given during preschool life. Immunization of older Schick-positive children or adults when indicated. Special consideration of pseudoreactors advisable after 9 years of age. Reactions to injections in younger children and persons not pseudo-positive are negligible. *Pseudoreactors should receive immunizing dose divided into several small injections.*

b. Pertussis—Administration of the prescribed dosage of plain or alum precipitated vaccine at 6–12 months of age. Administration in later preschool ages, or over, less significant as a community practice under official auspices. Value of repeat or booster dose on school entrance *not adequately established,* though such dose at younger ages advisable. Approved strength of vaccine, 10 to 15 billion organisms per cc., either plain or alum precipitated.

c. Tetanus—*Administration of plain or alum precipitated tetanus toxoid by itself in the preschool group as a routine practice is not recommended.* In combination with diphtheria toxoid, its use is approved in this age group. The administration of tetanus toxoid at any age is recommended, provided the environmental (social or occupational) conditions demand immunity. Experience is as yet not adequate to recommend the time of giving the repeat dose. The indications are that a booster dose in one year

with a repeat booster dose at time of injury, provided injury is not more than 5 years after booster dose, will provide adequate immunity so that anti-toxin need not be used prophylactically. Reactions to injections at all ages negligible with few exceptions.

d. Smallpox—Inoculation before 3 months of age or as soon thereafter as practicable. Repeat on school entrance and at 5-year intervals as far as practicable. *Revaccination upon exposure to active case essential under all circumstances.*

JAMES R. ENRIGHT, M.D.

Director, Bureau of Communicable Diseases

To The Editor:

It is very evident that Dr. Bluestone, as quoted in the editorial in the HAWAII MEDICAL JOURNAL, March and April 1944, has missed some of the significant factors of the "social phenomena" which have helped create the shortage of bedside nurses.

The nursing profession cannot be expected to remain static in a rapidly changing world. The so-called "higher education" of nurses is, in reality, an extension of nursing education to fit the nurse to meet the growing needs of the community. Every product of a higher nursing education still retains and uses her basic bedside nursing skills. Most nurses get more personal satisfaction from bedside nursing than from any other type, but those who have entered other nursing fields state that they have left hospitals for two reasons; first, better salaries, and second, the opportunity to live a more normal life, with regular hours of work and freedom from the medieval militaristic relationships with medical staffs and hospital and nursing administrators. It seems reasonable to believe that such an attitude on the part of the nurse is not the result of her advanced education, but an evidence of the fact that she is a product of our modern social order, where our philosophy of life is one of democracy and freedom, and our standards, right or wrong, are expressed in terms of dollars and cents.

The demand for nurses in public health programs was suddenly increased following the depression. The passage of the Social Security Act and the establishment of the national programs of Maternal and Child Welfare, Venereal Disease Control, Service for Crippled Children, etc., drew thousands of nurses from hospitals. This trend is increasing, as business, industry, and transportation recognize the value of a good health program. They have been quick to appreciate the economic value of an educated nurse, and are willing to compensate her accordingly.

The rapid advancement of medicine has demanded the addition of many highly skilled techniques and responsibilities for the nursing profession. It is true that bathing and feeding of convalescent patients, making of beds, etc., can be done well by persons who are not technically educated. It is possible that there may be a permanent place in our hospitals for the nurse aide type of personnel who have been introduced in our present emergency. It is, however, also true that, other things being equal, a well educated person will do a better job of any kind than one not so educated. No, the shortage of nurses is not due to their being too well educated, any more than is the shortage of physicians.

MARGERY MACLACHLAN, R.N.
HELEN GAGE, R.N.

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CLINICAL NOTES

MANAGEMENT OF LABOR IN A PATIENT WITH DIABETES MELLITUS

The following is a report sent to the referring doctor on the delivery of a diabetic patient. It includes many of the important points in the management of labor in such a patient, which I thought would be worthwhile publishing.

"Upon examination originally the patient was found to be in good condition generally. She had gone through the pregnancy in better condition than could be expected of a diabetic 38 years of age. She had slight edema of the ankles and a blood pressure of 140/90. The urine was negative for albumin. Her fasting blood sugar was 194 mg. per hundred cc. and she showed acetone in the urine. Her insulin was increased and given regularly before meals. Her blood sugar came down quickly and it was kept low, but acetone persisted in the urine. I did not want to change her diet much at this time. After four days she still showed acetone in the urine so I decided to terminate the pregnancy as she was either near term or overdue. It was impossible to be sure.

"According to the literature best results are obtained in these cases by cesarean section but normal labor seemed more advisable. The referring doctor had never mentioned cesarean to her and her first baby, weighing 8½ pounds, was born spontaneously after five hours of labor, in spite of her diabetes.

"The patient was given castor oil one morning; she developed fifteen minute pains for a few hours and then stopped. She was not upset by this and took her diet. Next day a No. 5 Voorhees bag was inserted at 9:30 A.M. The cervix was far posterior and had to be brought forward with sponge forceps before the opening could be reached. Dilatation to two fingers was easily done and the bag inserted; presentation was vertex and the membranes were not ruptured. Pains started at once, at ten-minute intervals. By 2:30 P.M. she was having three-minute pains of good intensity which continued. As the afternoon passed she developed rather severe abdominal distention and vomited everything she had eaten. By 6:30 P.M. she had a strong odor of acetone on her breath and apparently was developing acidosis fast. When the pains became strong the fetus assumed a transverse position and remained transverse.

"At 6:30 P.M. a vaginal examination disclosed that very little progress had been made. The cervix was only three fingers dilated, and was thick and uneffaced. At this time 1000 cc. of 10 per cent glucose

intravenously was started and 40 units of regular insulin were put into the flask. Another pound of weight was added which made 3½ pounds, and 1/6 grains of morphine sulphate were given. The pains continued strong and at three minute intervals. The patient rested well between pains.

"By 10:30 P.M. the glucose infusion was finished and another vaginal examination was made. The bag was just ready to come out and the cervix was completely dilated. The membranes were unruptured and the position was still transverse. Both hands and feet presented themselves at the cervix. I gently attempted to do an external version but the head would not stay down. I allowed labor to continue another hour and then ruptured the membranes. The presentation at this time was a double footling and progress was rapid. With three pains the infant was born. I had expected trouble getting the head through the cervix and had my Piper forceps ready but I did not get a chance to use them. Ether inhalation anesthesia was used for delivery. It was necessary to do an episiotomy because of scar tissue but this was repaired under local anesthesia.

"Following delivery the patient's condition was good. Another 1000 cc. of 10 per cent glucose with 30 units of regular insulin in the flask were given. This was to combat acidosis and to prevent insulin shock from the protamine insulin given in the morning. The abdominal distention continued for about thirty-six hours but was partially relieved by pitressin and a rectal tube. Since then her condition has remained good. She is now taking 40 units of protamine insulin before breakfast and is eating a regular non-diabetic diet. She has done fine on this and her fasting blood sugar is always near 130 mg. per cent. After twelve years of diabetic diets it is difficult for her to believe that such is not necessary for her well being.

"The baby was a male. He weighed 6 pounds 7 ounces at birth and his condition has been good at all times. I gave him one ounce of 25 per cent glucose every three hours by mouth from birth until breast milk came in, as a safeguard against insulin shock. There is a possibility of this developing in the infants of diabetic mothers because of insulin given to the mother during labor and because of increased output of insulin in such babies. He is getting breast milk now and I see no reason why he cannot continue until about six months of age. Obviously it will be necessary for the mother to eat a relatively high carbohydrate diet. Her insulin dosage should be about the

same as she needed before pregnancy. The production of milk should not interfere too much with her own carbohydrate metabolism if her carbohydrate intake is increased.

"Pituitrin was not used to induce labor because pituitrin does not produce normal contractions of the uterus. The wall of the uterus is made of several layers of muscle bands and will produce continuous contractions of certain bands for long periods. If this occurs at the placental site it will produce ischemia of the uterus at the attachment of the placenta which shuts off the oxygen supply to the fetus, causing its death. When large numbers of still-birth records are studied it is found that pituitrin is not safe to induce labor.

"Quinine was not used to induce labor because it produces uterine contractions that are too strong. Statistics on stillbirths also bear this out. I was glad I had not used quinine or pituitrin when the fetus changed to a transverse position.

"I wish to thank you for referring this patient to me and although she worried me at times I have enjoyed caring for her. I have made a study of diabetes and pregnancy in the past few months and was glad to have more experience. We have one woman here who has had four pregnancies with diabetes."

W. B. PATTERSON, M.D.

PENICILLIN THERAPY OF IMPETIGO CONTAGIOSA AND ITS ALLIED DISEASES*

A study on the use of penicillium inoculated dressings in the treatment of 30 cases of pyogenic infections of the skin was presented.

A modified method was given for growing Penicil-

lium notatum for the production of penicillin for local use in acute and chronic pyogenic infections of the skin.

A total of thirty cases of common pyodermias as seen in practice were studied. Fifteen cases were impetigo contagiosa. The patients were clinically clear of infection as early as 3 days and not later than 7 days. Four of these cases had previous sulfonamide therapy without improvement. Two cases of sycosis vulgaris showed promise of a new therapeutic means of treating a stubborn recalcitrant infection. Other cases of ecthyma, streptococcic lymphangitis, streptococcic ears and an abdominal skin wound healed entirely within 11 days. A staphylococcus aureus leg ulcer of 3 months duration had healed 90 per cent in 6 weeks after all methods of local therapy had been used.

A warning was given as to the growth of "home made" penicillin. The possible contamination of the pure culture of *Penicillium notatum* could render it useless and possibly dangerous. Also penicillin pads and liquor should be tested for their potency by ring test before using.

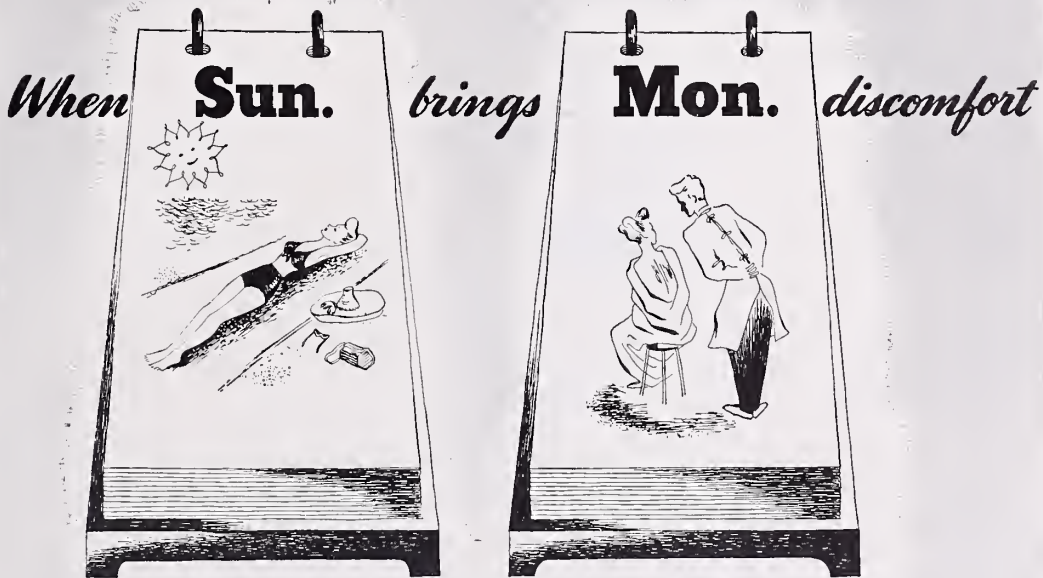
Topical penicillin therapy may probably supplant sulfonamides or be a valuable adjunct for the armed forces as well as in civilian practice. Its absence of local reaction and sensitivity places the mold in a unique situation in comparison to the sulfonamides.

A possible pit-fall for local penicillin is the suggestive theory of becoming penicillin-fast by repeated small application of the impregnated pad, media or ointment. This hypothesis can only be proven by time and experience.

When the purified product becomes available to the civilian practice another potent bacteriostatic agent will be placed on the doctor's shelf and should be as important as Ehrlich's "magic bullet."

HAROLD M. JOHNSON, M.D.

* Summary of paper read before the Fifty-fourth Annual Meeting of the Hawaii Territorial Medical Association, May, 1944. Complete article appears in the Archives of Dermatology & Syphilology for July, 1944.



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NEUROPSYCHIATRIC COMMENT

THE RISE AND FALL OF MEDICAL NEUROLOGY

Among specialties of medicine today there is one which from all outward appearances seems to be on the way out. I refer to clinical medical neurology. It appears to be rapidly losing its individual identity as a separate specialty by being incorporated either with its older partner, psychiatry, or its younger, more vigorous sister, neuro-surgery.

A brief review of the history of these branches of medicine in America may aid in explaining this trend.

Psychiatry

Medical specialties did not exist prior to the Civil War. It usually takes a war to jar mankind out of a complacent rut, to stimulate advancement in all fields of human endeavor. Psychiatry, not as a medical specialty but as a separate field, had existed, however, since the Revolutionary War when Benjamin Rush established mental wards in the basement of the Pennsylvania Hospital in 1756, and at Williamsburg, Virginia in 1772. Following these the McLean Insane Asylum was established in 1818, and the Hartford Retreat in 1822. The purpose of these institutions was not for diagnosis and treatment of mental patients but to separate them for the safety of others. If these facts indicate the birth of psychiatry, then psychiatry is the oldest of all American medical specialties and therefore much older than neurology.

But psychiatry did not progress as a medical specialty. The doctors who cared for mental cases were regarded as custodians or jailers rather than medical men, and with few exceptions they withdrew into their asylums and lost all contact with medical progress. It took a layman to jolt these institutions out of their complacency and isolation. A New England spinster, Dorothea Dix, shocked America by her revelation of the abuse of the insane. The doctors were forced into doing something about it. So in 1844, partly in self-defense, thirteen heads of mental institutions founded *The Association of Medical Superintendents of American Institutions for the Insane!* These men were not psychiatrists and did not call themselves such. That word was not used in America until fifty years later. Most of them had little training in mental diseases before they took over the institutions. The early papers of this association had more to do with administrative and housekeeping matters than with understanding mental diseases.

The clumsy name of this association existed until

1893 when it became *The American Medico-Psychological Association*. Nearly eighty years from the start it became the *American Psychiatric Association*. Its journal changed from *The American Journal of Insanity* to *The American Journal of Psychiatry* and its members acknowledged themselves as psychiatrists.

The backwardness of the early development of psychiatry has been blamed on its one-time meretricious partner—psychology. The wave of phantasms—phrenology, palmistry, and mind-reading, ouija, astrology, spiritualism, etc.—in these early days tended to hinder the spread to the general public of scientific psychiatric ideas. These activities made the word “psychic” synonymous with “mystic” and retarded all the mental sciences.

Neurology

American neurology was born, strangely enough, out of an attempt to treat psychoneurosis. Dr. William A. Hammond, Surgeon General appointed by President Lincoln in 1863, was interested in treating soldiers suffering from nervous disorders and established a hospital for this purpose. Dr. S. Weir Mitchell, a young Philadelphia physician, was placed in charge. In Europe, Parkinson in England and Charcot in France, and other general medical men, had described many organic neurological diseases. The neurologists promptly adopted them.

The new specialty born of war was vigorous and ready to fight. Psychiatry, its partner, old and tired, was the first to be picked on. So a feud started between these two closely allied branches of medicine which has only recently begun to recede. The New York Neurological Society was founded in 1875, and from this group sprang The American Neurological Association. The neurologists hounded the psychiatrists and the psychiatrists stayed behind their iron gates and snarled—unable to defend themselves. The neurologists invaded the institutions by keeping alive in the public mind the belief that the institutions were staffed by incompetents. Groups such as the Committee on Asylum Abuses were formed by the New York Neurological Society, giving the neurologists opportunity to visit patients they had committed to the institutions, cashing in handsomely on these visits. Thus psychiatry became a lucrative practice for the neurologists and the psychiatrists became more vindictive.

One of the early taunts flung at the psychiatrists was that they did no research in mental diseases and would not make their material available to any one

else. As a reaction to this the psychiatrists founded the New York Pathological Institute in 1895 with Dr. Ira Van Giesen as its head. He was soon replaced by Adolf Meyer, a neuropathologist and psychiatrist, who developed the research along psychiatric rather than pathological lines. Up to this period psychiatry had sunk to an all time low. Neurology on the other hand was growing and active, with research in neuroanatomy and neuropathology keeping pace.

Psychiatry's Rise

The shot in the arm which psychiatry needed was furnished by Sigmund Freud of Vienna, a neurologist who started out as a laboratory man in comparative neuroanatomy. Although he was claimed later by the psychiatrists, at first they would have nothing to do with him. Psychoanalysis burst like a bomb on the medical world.

The second shot in the arm which was to end the dark days for American psychiatry was furnished again by a layman. Clifford Beers' book, "The Mind That Found Itself," published in 1908, put psychiatry and its needs strongly before the public. Beers had been a patient and had written the book while recovering from a manic attack. He began to found societies to improve the conditions of patients in mental hospitals. With his manic drive and his sincerity, coupled with a pleasing personality and super-salesmanship, he was the shining knight of a crusade. His weapon was supplied him by Adolf Meyer in the term "mental hygiene." Beers sold the idea of mental hygiene to wealthy people; he raised large sums of money. Dr. Thomas W. Salmon was chosen as the medical administrator. He sold the idea to the medical profession. Psychiatrists now began to come out from behind their iron fences and talked to people of psychiatry as a medical problem.

With the first World War the mental hygiene movement reached its peak, establishing psychiatry on a par with other medical specialties. Gas and trench warfare, together with the imagination-stimulating but utterly un-descriptive term "shell shock," raised psychoneurosis to a major problem in the armies. Salmon grasped the opportunity to further the development of psychiatry and did a good job.

Psychiatry was now on the move. In 1921, the designation of "psychiatrists" was boldly adopted, the name of the society was changed to The American Psychiatric Association, and the psychiatrists began doing much more for the treatment of their patients than did the neurologists!

Von Jauregg in Vienna had introduced malaria treatment for paresis in 1917; Cotton began to talk of focal infections as a cause of mental disease, and removed innumerable tonsils, teeth and colons. This was nonsense, of course, but it seemed to make sense to most doctors and got them interested in mental disease. In 1933 Sakel introduced insulin shock

treatment for schizophrenia, and this was followed by Meduna with metrazol and Corletti with electric shock. These were all psychiatrists doing something for psychiatric patients—entirely without permission of the neurologists! The effect was electrical and psychiatry sprang forward to shake neurology from the saddle. One may question whether shock treatments can help all psychiatric patients, but there can be no doubt that they have done an enormous amount of good for psychiatry.

Neurosurgery

Neurology, during all this time, had not done so well. Tremendous advances had been made in the related fields of neuroanatomy, neurophysiology and neuropathology, and with the light shed by this new knowledge the understanding and interpretation of the organic neurological diseases were greatly increased. But clinical neurology was slipping, chiefly because neurologists had little to offer in the way of treatment. The lack of a distinctive therapeutics prevented neurology from attaining and maintaining its independence. Electrotherapy, its standby especially in Europe, was so obviously ineffective that it became a laughing stock. Neurology had emerged out of the Civil War, psychiatry out of the first World War, but from this war another specialty has emerged which will crowd the clinical neurologist farther into the background—neurosurgery.

Under the able leadership of the aggressive Harvey Cushing, neurosurgeons began doing something for organic neurological cases. When Dandy introduced pneumoencephalography, erudite neurological diagnosis received a great blow. Neurosurgeons rapidly took over all neurological research, accusing the neurologists of neglecting research, just as they had previously accused the psychiatrists. The three great neurological research institutions in North America today are headed by neurosurgeons. Neurosurgery is now firmly in the neurological saddle. There is no question that the surgeon now holds the dominating position in clinical neurology.

What then is to become of the medical neurologist? As an individual specialist he does not loom very large on the horizon of tomorrow. From all appearances his field in recent years has been in the process of being absorbed by psychiatry and neurosurgery. In the small cities the neurologist who came into the field through the asylum and the sanatoria is carrying on with neurology and psychiatry. In the larger cities psychiatrists confine their activities to psychiatry. They are too busy with the philosophical, economic, social, political and legal problems to think about and study the neurological problems.

It is only natural therefore that neurological cases tend to gravitate into the hands of the surgeon. The neurologist in large clinics who once was looked upon as a valuable diagnostic adjunct to the medical and psychiatric clinic, now finds himself threatened with

the role of assistant to the surgeon, or with doing the surgery himself. There is an economic reason for this trend. The general practitioner hesitates to send patients to the medical neurologist, or neuropsychiatrist as he frequently is called, because if surgical therapy is needed, the patient will eventually be sent to the surgeon, thus causing him added expense and delay. Also, the older neuropsychiatrist finds it difficult to keep up with newer dynamic neurology and does not quickly recognize the indications for surgical treatment. The surgeon will send the patient back to the physician if surgical therapy is not needed, whereas the medical neurologist is more apt to keep him for treatment of one form or another.

It seems obvious then that the neurologists of the future will be neurosurgeons. Perhaps, this statement should be reversed. The neurosurgeons of the future will be the neurologists, for without a thorough knowledge of clinical neurology, neurosurgery is apt to fall into disrepute! My chief used to tell me, "Any

one can learn to open a skull or a spinal canal, but without an accurate factual knowledge of the anatomy of the part, the pathology and pathological physiology of the disease you are treating, and a thorough understanding of the pre- and post-operative symptomatology, surgery will do more harm than good." This may sound fundamental but I have heard general surgeons and some so-called neurosurgeons say, "We have no need for a neurologist. We have air and lipiodol; and those neurosurgical operations are easy to do." It is useless to argue with such people. I would never trust my brain to the hands of a general surgeon who operates only on an occasional neurological case.

Neurosurgery, then, is a job for the neurologist, one who reads, studies, thinks, dreams and talks neurology and only neurology. If the neurosurgeons of tomorrow are well trained in neurology, then neurology has a great future.

RALPH B. CLOWARD, M.D.

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CIVILIAN HOSPITAL NEEDS

SURVEY OF HONOLULU HOSPITALS

This study was undertaken at the request of the Honolulu County Medical Society, and the Public Health Committee of the Chamber of Commerce of Honolulu. Authorization was granted by the Commanding General, Central Pacific Area, and the Commandant, Fourteenth Naval District.

Answers were requested for these questions:

1. What numbers and types of beds are now in service in the civilian hospitals in the City of Honolulu?
2. What numbers and types of beds should be in service to care adequately for our civilian population?
3. What numbers and types of beds should be in service to care adequately for our civilian population five and ten years from now?
4. In which hospitals should the additional facilities be installed, and which types of beds should be provided in the different locations?
5. What new sites are desired if existing sites are not deemed adequate?

All the public hospitals and homes on the island of Oahu were visited, and their chief administrators interviewed. Many persons in official and other walks of life, who were believed to have information on hospital affairs, were also consulted. It has been a spare-time job, added to a busy service as district medical officer. The lack of vacant hours has made it necessary to limit the scope of the study, and to refrain from exploring many interesting paths that were disclosed.

Uniform courtesy was experienced in every one of these visits and interviews. Administrators were frank in displaying the defects of their institutions, as well as the favorable aspects. Officials talked with complete freedom about overcrowding, financial and personnel problems. As a result, a great mass of factual information has been collected, from which certain definite ideas have crystallized. Many loose ends have gradually woven themselves into a definite pattern of community needs.

Background

Even before 1941 the impending shortage of hospital beds was realized, and plans were being made to meet the need. In December of that year occurred the attack that placed the nation at war. No community that has been so deeply seared by battle as this one can ever be the same again. Disruption of civic affairs was followed by an influx of thousands of war workers, a considerable number of whom re-

The ideas and opinions here expressed are the private views of the writer. They are not to be regarded as the official policy of any government department.

quired hospitalization from the day they landed. Housing, feeding and working conditions in the early days were such that much sickness resulted. The demand for hospital beds far exceeded the supply.

In the emergency, the Army assumed complete charge of the hospital situation and rapidly increased the number of beds by taking over and equipping certain public buildings. Shortly after, the Office of Civilian Defense opened the Wahiawa and the Sacred Hearts hospitals. The former serves a large area northwest of the city, and the latter serves as an overflow for all of the city hospitals. This action ameliorated conditions, but all of these new hospitals are temporary activities which will be liquidated after the war ends, if not before.

The forward-looking people of the city began to consider what would be the conditions and requirements when rearrangement of affairs on a peace basis became possible. Several of the hospitals applied for grants, under the Lanham Act, for construction of new buildings. Many persons felt that a spirit of rivalry was being shown in these applications, rather than a coordinated effort to meet the needs of the community. It became apparent that a study of the over-all requirements of the hospitals was desirable, and the feeling prevailed that some qualified outsider, having no affiliations with any of the local institutions, should conduct it.

Appraisal of the Community

Before it can be said how many hospital beds a community should have, it is necessary to know what kind of community it is. Honolulu has certain features that make it unique. Long catering to the tourist trade has developed certain aspects at the expense of others. Racial groups and mixtures affect the reaction to certain diseases. The missionary background is still a potent influence in public affairs. Distance from the mainland, and predominance of agricultural workers over industrial must also be considered.

Some characteristics are immediately apparent. The people, in general, are generous, public-spirited and welfare-minded. No patriotic or charitable appeal has gone unanswered. Are they steadfast enough to carry through a huge program of hospital building that will be increasingly costly for several years to come? An answer to this is necessary before recommendation is made, for it would be of little use to recommend a hospital program that would be beyond the ability or desire of the people to complete. A cri-

terion of the moral fibre of the community was needed, and I believe it has been found in the campaign for general immunization against diphtheria, which was started in 1929. The people and the authorities have carried through, from year to year, so successfully that the number of cases has fallen from above 190 in 1930 to less than 20 in 1943. This indicates a persistence of public effort, beyond the first blast of enthusiasm, and a certain toughness of the community fibre. It justifies the belief that the people, if they believe a hospital program is reasonable and justified, will be steadfast enough to carry it to completion.

The general ability of the local physicians is an important consideration in deciding on a hospital program, for it is the rule that the ablest physicians make the greatest use of hospitals, and insist on the highest standards of hospital service to the sick. It is a common observation that the average of professional ability in the Territory is well above the average found on the mainland. The reason for this is not hard to find. The Territory offers unusual opportunities for the young doctor. If he takes his internship at a local hospital and makes a favorable impression on his associates, he is able to find a position as soon as he completes his hospital work, with an income that it would take him several years to attain in practice on the mainland. This fact is known in all the medical schools, and leads the best class of students to compete for the local positions.

It is customary for the doctors of this area to go to the mainland, or to foreign countries, for postgraduate work at frequent intervals. They also are active in bringing the leaders of the profession to Hawaii for lectures and clinical courses. All these factors lead to a high level of professional ability and to increased use of hospitals.

The future population of Honolulu is an important consideration, for hospital adequacy is commonly measured in numbers of beds per thousand of population. Estimates have been sought from public utilities, from business men, and from government sources. Much of the information on which my estimate is based is of a confidential nature, but there are many reasons for believing that there will be a large, permanent increase in the local population.

Many war workers are buying homes, and say that they will bring their families here after the war. Service men married local girls, to the number of 883 in 1943, and 805 Caucasian men married women of darker races that year. A large proportion of these will find more congenial conditions here than on the mainland. For many years to come, the Army and Navy activities will continue on a large scale in this area, and will require greatly increased personnel, both civil and military. Estimates should be based on the population one year after the war, when there has been some degree of stabilization.

After consideration of all factors, the conclusion is reached that the permanent population, for whom hospitalization must be provided, will be approximately 260,000.

An additional need which the local hospitals must serve lies in the large number of ex-service men who will be found in the community after the war ends. More than ten million men and women, now in the armed services, have become accustomed to receive high-grade medical and hospital care while on duty. They will not be satisfied with a lower standard of service when they return to civilian life. The government's new plan for vocational rehabilitation of disabled veterans has been announced, and it contemplates the use of local hospital beds on a very large scale.

Hospital Conditions

There can be no doubt that a grave shortage of hospital beds exists, and that this is a constant threat to the safety of the community. Epidemics, such as the recent ones of poliomyelitis and dengue, are warning signs that cannot be ignored. Typhus and plague are a constant menace. The public has little appreciation of the skillful work done by the health authorities and the medical profession in protecting them from such invasions. It may not be possible to avert similar dangers in the future.

Rapid travel by airplane offers ideal conditions for transmission of insects and animals which carry certain epidemic diseases. An elaborate system of quarantine and inspection now protects the public, but there is always the possibility of a momentary failure which will permit the introduction of a disease-carrying insect or animal. This hazard makes it necessary for the community to maintain a certain number of hospital beds for use in such a contingency.

Overcrowding now exists in several of Honolulu's hospitals, to a dangerous extent. Permanent construction has been stopped, and materials are not available under present conditions. Several hospitals which were about to begin construction of additional buildings were forced to postpone them when war came. They have attempted to meet the needs of the community for hospital care by putting beds on lanais, in attics, basements and corridors. Beds in rooms and wards have been crowded so closely together that the danger of transmitting infection from one patient to another is greatly increased. The standard requirement of 75 square feet of floor space for each bed has had to be ignored. Fire hazards have been greatly increased by overcrowding, and by placing patients in structures that are not fireproof. Ideal standards have been sacrificed in the determination to provide for all who need hospital care, and that aim has been accomplished. All these conditions are well known in the hospital world, and are a source of anxiety to the authorities. They are looking forward to the time when building can be resumed, and the present dangerous conditions corrected.

Hospital Standards

There are certain standards of adequacy of hospital beds which are generally accepted throughout the United States, but they must be modified in each case to conform to the special conditions that exist in the locality. The basic figures must be adjusted to the age distribution of the population, race prevalence, housing, climate, industrial and economic conditions, and other factors.

The following are the accepted standards, but they cannot be applied to Honolulu without being modified to meet local conditions. They are expressed in terms of hospital beds required for each 1000 of population:

General medical and surgical.....	5.
Obstetrical	0.45
Mental institutions	0.5
Observation and treatment units.....	0.25
Feeble minded and epileptic.....	3.
Children	0.5
Contagious diseases	0.5
Convalescent homes	0.75
Chronic indigent	2.
Tuberculosis—two for each annual death.	

The minimum safe level for general medical and surgical beds, below which it is hazardous to go, is 4.5 beds per thousand of population. Honolulu, in 1941, had only 3.5 per thousand, and it has continued to fall below that dangerous level.

Throughout the hospital world, 85 per cent of occupancy of hospital beds is regarded as the limit of safety. Above that, there is no margin in case of epidemics or large-scale catastrophes. Segregation of patients into various groups, each of which must be kept separate from the others, is also a factor in the 85-per cent occupancy rule. Honolulu hospitals had 100-per cent occupancy for a considerable period, and have even crowded in additional beds, thus increasing the fire hazard and the danger of cross infections.

Honolulu's Requirements

These estimates are based on the assumption that there will be 260,000 permanent residents, one year after the end of the war, who will depend on the hospitals of Honolulu for care when sick. The figures on beds available at present do not include those gained by overcrowding or other dangerous devices.

General Medical and Surgical Beds: The number now available is 420. The number required to bring the ratio to 5 beds per 1000 population, would be 1300. Thus, there is a deficiency of 880 general beds.

There are a number of reasons why this community can, with reasonable safety, continue with less than the ideal ratio of 5 hospital beds per 1000 population. One is the nearby plantation hospitals, which would aid in case of great emergency. Another is the mild climate, which makes it possible to care

for the sick in temporary, quickly-erected structures when necessary. I believe that the present goal should be set at 1000 beds, which would require an increase of 580.

Distribution of the general beds now available is, 69 at St. Francis, 226 at Queen's, and 125 at Kuakini Japanese Hospital. It is assumed that the Army will soon evacuate the last-named hospital, and make it available once more for public use. Additional construction, which has been approved, will give St. Francis 66 additional beds, and Queen's 100 more. When these additions are completed, there will still be a deficiency of 415 beds. This should be corrected by building, as quickly as possible, 100 additional at Kuakini, 200 at St. Francis, and 125 at Queen's. Justification for this distribution will be found in the section that deals with the individual hospitals. The table below will make the figures clear.

General Medical and Surgical Beds

	PRESENT	ADDITIONAL CONSTRUCTION APPROVED	ADDITIONAL REQUIRED	TOTAL
Kuakini	125	.....	100	225
St. Francis	69	66	200	335
Queen's	226	100	125	450
				1010

Obstetrical Beds: The number now available in permanent buildings is 104. Fifty of these are at Kapiolani, 12 at Kuakini, and 42 at Queen's. An additional 31 are found in a temporary structure erected by the OCD at St. Francis Hospital. For a community of 260,000, the number of beds, on the ratio of 0.45 per thousand, would be 117. There are a number of reasons why this would be insufficient for Honolulu, so it should be calculated on a different basis.

During the year 1943 there were 6606 births in the city. It is significant that this represents an increase of 14.4 per cent over the preceding year, and it must be anticipated that similar increases will be shown from year to year. Approximately 6,000 of these births occurred in hospitals, nearly 90 per cent of total births. War and the blackout have made it difficult for doctors and alien midwives to be abroad at night, so deliveries in hospitals have become almost universal. It is the common experience that, once people have learned the advantages of delivery in a hospital, no substitute will satisfy them. The high percentage of births in hospitals will continue.

If the 6,000 mothers spent 10 days each in hospital, it would require about 190 beds to accommodate them. Using the safe margin of 85-per cent occupancy, and considering the large yearly increase of births, it appears reasonable to adopt 200 obstetrical beds as the desired number, one year after the end of the war.

Additional construction, which has been approved, will give St. Francis 33, to replace the 31 now in a

temporary structure, and Kapiolani 50 more beds. This will bring the total to 187. The new wing at Queen's is so planned that the fourth floor can be completed at some future time, if it be required, to provide additional obstetrical or general beds. An increase of 15 beds at Kuakini Hospital would bring the total to about 200, the desirable number. Justification for this distribution will be found in the section that deals with the individual hospitals. The table below will make the figures clear.

Obstetrical Beds

	ADDITIONAL CONSTRUCTION		ADDITIONAL REQUIRED	TOTAL
	PRESENT	APPROVED		
Kapiolani	50	.....	.....	100
Kuakini	12	.....	15	27
Queen's	42	.....	.....	42
St. Francis .....	.....	33	.....	33
				202

Mental Institutions: The Territorial Hospital has a normal bed capacity of 926, and has about 1070 patients at present. The census is increasing at the rate of 40 to 50 each year. This hospital serves not only the Honolulu area but the whole Territory, with a population estimated at 475,000. The picture is obscured by the presence of the Army, which occupies about 280 of the hospital beds, but provides in return 200 beds in buildings of a temporary nature. This is, however, a thing of the moment only, and it is probable that the Army will have vacated the hospital buildings by the time any permanent construction can be started.

At present there is dangerous overcrowding, with occupancy sometimes as high as 115 per cent. This interferes with the vocational activities, which are such an important feature of the treatment in mental institutions. Patients of the chronic-insane type cannot be crowded too closely together without adding considerably to the danger of serious personal conflicts.

Plans have been prepared for a new treatment unit, which will provide 218 additional beds. Application has been made for a grant under the Lanham Act, which is designed to aid communities suffering from the effects of large increases in population due to war work. There can be little doubt of the close association of this project with the war effort when one considers:

- a. The great increase of population on Oahu due to extensive construction and expanded government activities.
- b. The large and increasing number of those who came here as war workers, and are now inmates of the hospital.
- c. The rapidly increasing number of veterans hospitalized here. It is reported that the Army and

Navy are discharging 25,000 men each month with mental diagnoses. Hawaii will undoubtedly have its share, and many will require hospitalization.

Addition of 218 beds appears to be a timid approach to a solution of the problem. It is of little avail to build an addition that will be insufficient before it is completed. It would be more economical for the community to construct buildings that will provide for the obvious needs of the near future. A shortage of nearly 150 beds already exists, and there is an increase in the census of 40 to 50 each year.

It is recommended that the new wing be expanded so that it will accommodate 400 patients. The plans should be so drawn as to provide for future additions. Fortunately, there is sufficient space available in the site. Erection of this badly-needed structure should be completed as rapidly as possible.

Observation and Treatment Units: The purpose of these is to provide care and treatment for patients suffering from acute mental disturbances. It is found possible to discharge a large number of the patients to a useful place in the community without the stigma of having been committed to a mental hospital. The unit at Queen's Hospital has been receiving about 30 patients each month, and approximately 85 per cent of them have been returned to the community as cured. This unit has proved to be a very valuable screen, giving important protection to the public and to the patients. Its present location, in the Queen's Hospital, is a very fortunate one, which has proved to be beneficial to both activities. At present, the accommodations are inadequate, and the volume of work is constantly increasing.

An application is on file for a grant under the Lanham Act. If approved, it will provide for 50 beds, with rooms, wards, and clinics suitable for the highly specialized work of this unit. It will be of great value to the community, and all who are in a position to aid in its accomplishment should unite to insure its success.

Feeble-minded and Epileptic: Waimano Home now has more than 400 children, and it is stated that there are 300 more awaiting admission. The buildings, erected at various times since 1921, are in poor condition.

War conditions have had a considerable effect in increasing the number of children confined. Many of them would be kept with their families in normal times, but now, with nearly every able-bodied adult employed, there is nobody at home to care for sub-normal children, who need constant watching. When conditions return to normal, there may be a considerable reduction in the census at Waimano.

There are several wooden buildings on the site, built by the OCD as shelters to be used by refugees from nearby towns in case of air attack. These buildings can be converted for use as dormitories at rela-

tively small cost, and this should be done as soon as the OCD is willing to release them. It is probable that they will provide enough additional beds to serve the needs of Waimano Home for some time to come.

If additional accommodations are required, buildings of the type now being used by the Army and Navy for hospital purposes would serve the purpose admirably. It is probable that they will be available for the public, at a relatively low cost, soon after the end of the war. There is plenty of room in the site for a number of these buildings.

Tuberculosis Hospitals: This disease offers the greatest menace to public health in the Territory. The races which predominate here are those especially susceptible to tuberculosis. An example of this was seen at one hospital, where the cases of the disease were in this proportion; Japanese 40, Filipinos 15, Koreans 15, Chinese 5, Caucasian 2. The health authorities are well aware of this danger and have inaugurated case-finding activities which have shown the alarming prevalence of the disease.

It is usually acquired in the home, from a tuberculous relative or associate. By the time the disease has progressed so far as to be easily recognized, the average patient has infected 5 other persons. Infection of others can best be prevented by removal of all patients to a hospital, where they can be treated and taught how to avoid giving the disease to those about them. Some tuberculous patients resent this control, and insist on their right to go about spreading the disease. They are a serious menace to the community.

In Hawaii, the deaths from tuberculosis per 100,000 population have fallen from 89.1 in 1934 to 57.3 in 1943, a most creditable showing. The rate in the United States during the latter year was 43.5. Nutrition, living conditions and racial proportions have a large influence on the prevalence of the disease. Two per cent of draftees in Hawaii have shown evidence of tuberculosis, which is twice the rate on the mainland.

Leahi Home, Honolulu's hospital for the tuberculous, has a normal capacity of 460 beds. All of these are occupied. There are 180 tuberculous patients in other hospitals, awaiting admission to Leahi. Several hundred others are scattered in the community, because no hospital beds are available for them. They are giving the disease to an unknown number of those with whom they come in contact. General hospitals do not like to take tuberculous patients, and are not well equipped to care for them with safety. It has been necessary to reduce the case-finding efforts because there is no place to hospitalize the patients when they are discovered. This means that many patients in the early stages of the disease, who probably could be cured, will go on to an advanced stage, with little hope of recovery, before hospital treatment can

be started. It also means that many more persons will be infected by contact with them.

For every death from tuberculosis, one expects to find 5 other active cases among those who live in close contact with the patient, and 15 others who have been exposed to infection. Thus there are 21 persons involved in the average death from tuberculosis. This indicates the importance of the case-finding program of the local health authorities. The 270 deaths from the disease that occurred in Hawaii during 1943 indicate the possibility that more than 5,000 people have been exposed and should be examined to see if they are infected. Another detail of local interest is the fact that the incidence among persons of the darker races is 5 times as high as it is in Caucasians.

Early construction of beds for tuberculous patients is one of the most urgent needs. Leahi Home should be enlarged by 500 beds. Nearly 400 of these can be filled immediately by patients in temporary hospitals, and others who are still in their homes and spreading the disease. The beds that remain unfilled will permit resumption of efforts to protect the public by seeking those who have the disease in the early stages. The main building is more than 20 years old, and it is in need of extensive repairs and modernization. In the new construction, one group of about 50 beds should be designed for safe keeping of recalcitrant patients who refuse to stay in the hospital or to take precautions for the protection of others.

Beds for Sick Children: Those now available are, Kauikeolani Children's Hospital 75, Kuakini Japanese Hospital 18. Many additional beds have been crowded in to accommodate the great demand. The number required for Honolulu, assuming a population of 260,000, and employing the standard ratio of 0.5 per thousand, would be 130. This number would not be enough for local conditions, and it should be raised to about 150.

At present, even with additional temporary beds, patients are being turned away. Conditions at both of these hospitals are unsatisfactory because of overcrowding and obsolescence. War conditions are making maintenance and nursing service very difficult problems. In spite of this, the pediatricians feel that good work is being done, and the number of cross infections is small. Lack of facilities is said to prevent introduction of new methods of scientific study and treatment. Those hospitals which do not have beds for children at present do not desire to establish them. It is quite satisfactory to have these patients well separated from adults, and concentrated in two hospitals.

Kauikeolani Children's Hospital has plans for a new building, with approximately 100 beds, to replace those now in use. It has money enough to accomplish a considerable part of the construction, as soon as materials become available. This building should be increased to about 120 beds, and started as

soon as possible, even though market conditions are not favorable. The need is urgent. The new building should provide a unit, of about 15 beds, which can be utilized for isolation when needed. It should also have complete laboratory and other facilities for study of new methods of diagnosis and treatment of diseases of children, as well as a modern surgical clinic. At Kuakini Japanese Hospital, new construction should include a 30-bed children's wing, to replace the present 18-bed ward. Both institutions have ample land for these expansions.

Acute Contagious Units: There are unique conditions here, which make it necessary for Honolulu to maintain special beds for contagious diseases. Recent epidemics of poliomyelitis and dengue are reminders that should not be ignored, also plague and typhus may strike without warning at any time. Such units may remain vacant for long periods, and it is a blessing when they are empty. When an epidemic comes, they pay for themselves in a short time. Therefore, they should be maintained at the expense of the community rather than as an item of the budget of a voluntary hospital, but they should be located on hospital grounds. There they can be assured of the services of the hospital staff, and they have considerable training value for nurses and doctors.

Buildings of the temporary type are now being used extensively by Army and Navy for hospital purposes, and they will soon become available to the general public. They have been ingeniously adapted for use as hospital wards, clinics, and many other special uses. They appear to offer the perfect solution of the problem that faces a community when epidemics strike. In a few hours they can be erected and occupied. As the need grows, they can be indefinitely expanded, on short notice and at small cost.

Kuakini Japanese Hospital has a 40-bed ward which was designed for the care of contagious diseases. This is now being used by the Army. A 30-bed isolation unit in a building of temporary type has recently been provided by the OCD at Queen's Hospital. For the present, this appears to be adequate.

For the future, a unit of about 15 beds, which can be adapted for use as a contagious area when necessary, should be included in the plans for the new Children's Hospital. At Queen's, the temporary contagious building, with careful maintenance, should last for several years. At Kuakini, the contagious unit should be rehabilitated, as soon as the Army is willing to relinquish it.

Chronic-indigent Beds: Aged, sick and poor persons are rightfully regarded as dependents of the community. At Maluhia Home is Honolulu's institution for their care. The buildings date back to 1910 and are far gone in deterioration. The normal 140 beds are inadequate, and twice that number could be filled. Those in charge are doing their best under very difficult circumstances.

War conditions have had their effect on the load. Many of these old, decrepit people would be at home with their families, but with nearly every able-bodied person engaged in war work, there is nobody to care for them. The number of indigents is not likely to decrease after the war ends. Many of those who came here as war workers will remain here, and the improvident ones will become wards of the community. Others, who were formerly on the indigent rolls, are now working but many are giving little thought to the future. When work becomes slack, they may be expected to revert to their former status.

The present site of Maluhia Home is too small for any expansion, and the buildings are hardly worth salvaging. Space is too limited to allow the old people to get the sun that they need. Nursing care and hospital facilities are inadequate. It is recommended that the present home be disposed of, and that a new institution be built, well outside the city limits. Pavilion-type buildings, well separated, would be relatively low in cost, and suitable for this climate. Many of the inmates would be able to do some useful work in shops or gardens, and arrangements should be made for them. Provision should be made for about 300 persons at first, but land enough for further expansion will be required.

Convalescent-nursing Home: The requirement of beds in such homes is usually estimated at two for each 1000 of population, which would show a need for 520 in Honolulu. A canvass of local hospitals showed that, during 12 months, there were 596 patients who could have been discharged to convalescent homes if there had been any. As such patients usually occupy beds for a very long time, they become a serious problem whenever the demand for hospitalization is great. The advantage of the convalescent-nursing home is that it does not require the high-priced equipment and service of a hospital, and so the cost is considerably less. The chronically ill, of moderate means, are able to receive the care they need, and still avoid the loss of self-respect that comes from entering a charitable institution.

In the past, many such institutions have been started by individuals, but have not long survived. Economic changes, increasing costs, difficulties of securing materials and trained help have soon closed their doors. This sort of enterprise requires, and deserves, substantial aid from the community. It may be found desirable to give subsidies, from government or charitable funds, to private nursing homes run by nurses or others. This will require careful supervision, otherwise the desire for profit may work to the detriment of the patients. It may be found better to provide homes supported by the local government, or by community welfare activities. This is a matter that should be carefully considered, and decided by the permanent hospital committee that is recommended in another place.

City-County Hospital: Several persons have expressed the opinion that Honolulu should have its own city-county hospital, on a grand scale, to care for all the indigent, aged and others. Many years of experience in such institutions, and study of those in Los Angeles, New Orleans, Jersey City, and others, leave no doubt that Honolulu is indeed fortunate not to be carrying such a burden.

Indigent patients are now cared for in the city's

voluntary hospitals at a very reasonable rate, and they receive the very best of care. This cost only \$70,000 in 1943, about what it might cost to prepare the plans for the magnificent institution that has been recommended. As long as this service for the sick and poor can be rendered at so small a cost, it would be difficult to justify the construction and development of a new institution.

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FIFTY-FOURTH ANNUAL MEETING HAWAII TERRITORIAL MEDICAL ASSOCIATION

May 4-7, 1944

MABEL L. SMYTH BUILDING AND PACIFIC CLUB, HONOLULU

The Fifty-fourth annual meeting of the Hawaii Territorial Medical Association was opened in the auditorium of the Mabel L. Smyth Building with a joint meeting of the House of Delegates and membership. The program prepared was as follows:

STUDY GROUPS

Surgery

Vascular Injuries
Pilonidal Sinus
Peripheral Nerve Injuries

Chairmen:

J. E. Strode, M.D.
Lt. Col. R. Raine, MC, AUS
Capt. Wm. M. Strange, MC, USNR

Medicine

Tropical Disease Dangers in Hawaii

Chairmen:

Nils P. Larsen, M.D.
Comdr. A. M. Masters, MC, USNR
Col. Chas. T. Young, MC, AUS

Eye, Ear, Nose & Throat

The Traumatic Eye
Traumatic Ear and complications

Chairmen:

F. J. Pinkerton, M.D.
Comdr. J. V. Treynor, MC, USNR
Maj. Geo. E. Zukovich, MC, AUS

Obstetrics & Gynecology

Caudal Anesthesia—
Movie and discussion

Chairmen:

Lyle G. Phillips, M.D.
Capt. James P. Fitzgibbons, MC, AUS

SCIENTIFIC PAPERS

Penicillin Therapy in Impetigo Contagiosa and Its Allied Diseases (Use of Penicillium Inoculated Dressings) by Harold M. Johnson, M.D.

Use of Penicillin in a Case of Brain Abscess by Comdr. E. B. Walker, MC, USNR.

Short Summary of Penicillin Treatment with Some Local Experiences by Nils P. Larsen, M.D.

Proctoscopic Color Movies by Comdr. J. P. Nesselrod, MC, USNR.

Internal Fixation of Fracture of Ankle Joint by Major Robert H. Wray, MC, AUS.

Various Manifestations of Leprosy, with Kodachromes by Major Edwin K. Chung-Hoon, MC, AUS.

Blood Transfusion Therapy in Surgery as Related to the Blood Bank by Rogers Lee Hill, M.D.

Sanitation problems in the Tropics by Comdr. Babioni, MC, USN.

Psychoneurosis in War by Comdr. W. S. Littlejohn, MC, USNR; discussant: William M. Shanahan, M.D.

Management of War Injuries by Capt. H. H. Searls, MC, USNR; discussant: Capt. L. W. Johnson, MC, USN.

MEETINGS

Council—Thursday evening, dinner meeting at Pacific Club.

House of Delegates—Friday afternoon, 3:30, Mabel Smyth Building.

Council & House of Delegates—joint meeting—Saturday luncheon, Pacific Club.

Other meetings held in conjunction with the annual meeting were:

Advisory Committee to Maternal and Child Health, and

Advisory Committee to Bureau of Crippled Children Thursday and Friday, May 4th and 5th, Mabel Smyth Building.

Plantation doctors with HSPA Health & Sanitation Committee Thursday, May 4th, 4:00 p.m., Mabel Smyth Building.

Hawaii Medical Service Association—Friday, May 5th, 1:30 p.m., Mabel Smyth Building.

Breakfast Round Table—Discussion Hospital Survey and Board of Health Programs—May 6th, 7:30 a.m., Mabel Smyth Building.

SOCIAL PROGRAM

Buffet dinner, Friday evening, May 5th, Mabel Smyth Building.

Golf—Waialae Golf Club, Sunday morning, May 7th—Dr. H. C. Gotshalk in charge.

Picnic—at residence of Dr. Jesse Smith, Sunday afternoon, May 7th.

EXHIBITS

Leprosy—colored slides—Dr. Pinkerton.

Bookbinding—Henry Takara.

Library—new books, gifts, pamphlets, medical books carried in stock.

Scientific papers presented and discussions of study groups will be published in the HAWAII MEDICAL JOURNAL.

Minutes of meetings, discussions at breakfast round table, and President's address follow:

ADDRESS BY PRESIDENT

DOUGLAS B. BELL, M.D.

It is a pleasure to welcome so many guests from the Army and Navy. Without the aid of your superiors this meeting could not have been held. We are grateful for their cooperation. We are thankful that so many from the Services are available to take part in these meetings. It is two years since this association last had a formal meeting for its entire membership. The medicos of Hawaii were adjudged too busy to attend such a meeting. After two years of war it was felt that the association should again have the usual sessions with formal papers and some entertainment.

The work of the association has been carried on by the council. The discontinuance of the yearly meetings is regrettable because it has interrupted inter-island friendships and associations. It is to be hoped that meetings shall never be held irregularly again. Our strongest tie has been through the HAWAII MEDICAL JOURNAL. Glad am I that this venture was begun before the war started. I commend the Editor—Harry L. Arnold, Jr.—and his staff for doing an exceptional job. Without the JOURNAL our union and fellowship with our conferees on the other islands would be nil. Personal visits to the other islands have been hindered because of travel difficulties and increased professional work.

The tempo of professional work has thrown a greater burden on our Executive Secretary, Mrs. Elizabeth Bolles. It was a great day in our association's history when she was employed. The increase in our membership and the manifold new duties incident to the war and the use of the Mabel Smyth Building have multiplied her usefulness. Her efficiency and usefulness I commend. Because of these, however, we have become slack and lazy in carrying out our duties as Medical Society officers. This is regrettable and can only be rectified by greater personal interest and work in society affairs. It is not right that she alone should be conversant with past actions of the society and duties of the officers. It is not right that she alone knows about society finances. In our busy professional life these important tasks may be onerous but when the tension relaxes a bit we should again shoulder these responsibilities.

Medical men have a greater fraternal spirit than the men of any other profession, yet their individualism is remarkable. Most always when something worthwhile is to be done the membership falls in with a unison that is heartening. That is exemplified by this building, by our library and the Hawaii Medical Service Association. But always a few hardy souls resist. For years it has been possible to become a life-member of the Queen's Hospital Corporation for \$50. It is regrettable that so few doctors belong—doctors who had their hospital internships there and who daily use the facilities of the Hospital. This can be accredited to disinterest or perhaps ignorance. For some months there has been a proposed project for a convalescent home in Honolulu. There was seeming agreement that this home should materialize. Lately certain misgivings have arisen and individuals have obstructed the planning for this home. Let us hope that the project can be completed.

In this war-torn world we honor our physician brothers in the service. We who have remained at home are ever conscious of the sacrifices that you who have entered military service have made. We who are left with the extra burdens of civilian practice can not come through this conflict without scars of battle either. The increased pressure and tension of civilian work shall have its toll upon our hearts and blood vessels. To each general practitioner who has striven to do his work I would offer a wound-stripe.

We must now plan for the future. Our brothers-in-arms must be taken care of when the war ends. Changes in the whole of our social organization will necessitate changes in our ways of practice. Our society must keep abreast of these

changes. Bold thinking and decisive action will be necessary to keep out bureaucratic control of medicine. We must oppose political control of medical service. No other profession has more radically and continuously improved its service during the last fifty years. Our public relations policy has been so poor, however, that we have portrayed to the American people as a selfish vested interest, stubbornly opposing every suggestion or offer by social-minded people to improve the distribution or to reduce the costs of medical care.

Our failure to clearly interpret ourselves, our accomplishments and purposes to the American people has rendered us vulnerable to political manipulation by a bureaucracy seeking ways of perpetuating its power. We must tell our story. It should be urged that an information and service bureau be established in Washington. There and here we of the medical profession must assert and maintain a definite status in the formulation of all legislation on health and medical matters.

After fifteen years of continuous service in either the Honolulu County Society or Territorial Medical Association, I feel prepared to properly judge especial efforts and selfless accomplishments by my brothers in the society. Too little praise and notoriety have been given to their efforts. The society has no distinguished service medal to offer these men for their services. It is fitting that I should without benefit of council or other advice commend certain of our fellows for their great and good work through the years and especially since 1940. Insufficient praise has been given to the work of the Medical Preparedness Committee of the Honolulu County Medical Society. I wish to commend particularly Dr. (now Lt. Colonel) Robert B. Faus and Thomas Mossman. Their work was outstanding and helped save our whole community from disaster on Dec. 7, 1941.

Since that day which shall live in infamy, Dr. Harry L. Arnold, Sr., has done a momentous and meritorious job in planning medical service in the Office of Civilian Defense. I know of no one who could have handled the job as well. To Dr. F. J. Pinkerton we owe great thanks for the multitudinous jobs he has done, all of which he has done so well. Lately he has shouldered the job of director of Procurement and Assignment for the Territory. I can assure you that it will be administered honestly and efficiently. His monument—the blood bank—needs no describing. It should bear his name forever. The Queen's Hospital without a Medical Director and for many months without a Pathologist has been ably guided by Dr. James R. Judd.

There are others deserving kudos but I have singled out the Greats. To them I offer our thanks for work well done. I wish to thank my fellow officers in the society for their great helpfulness in carrying on the business of the association, and then, in farewell, appropriately repeat: "Go, Judah, lie down and rest. Let sleep come to your eyelids and peace to your heart. Remember the words of the sages: 'It is not incumbent upon thee to complete the task.'"

MINUTES OF MEETING
COUNCIL

Thursday, May 4, 1944 at 6:30 P.M., Pacific Club

Present: Dr. Bell, presiding; Drs. Molyneux, Doolittle, S. R. Brown (Hawaii), Paul Withington, F. J. Pinkerton, S. R. Wallis (Kauai), and W. B. Patterson (Maui).

Medical Service Plans: Discussion bringing up to date the status of each county society in considering a territorial-wide plan.

EMIC Program: Dr. Wallis reported that Kauai was not

in agreement with paragraph No. 5 of the statement of Policy, but after discussion of it at the Board of Health Advisory Committee earlier in the day, he felt his society would withdraw its objection.

It was suggested that a policy be adopted whereby the wives of service men under this program be given free choice of physician and hospital anywhere in the Territory.

Convalescent-Nursing Home: Dr. Pinkerton gave a report of the progress made to date. The question was raised as to how the home is to be administered and whether beds will be available for patients from outside islands. Assurance was given that patients from the outside islands would have an equal chance for admission with those from Oahu.

Western States Public Health League: Dr. Doolittle reported that he, Dr. Molyneux and Dr. Bell had reviewed the correspondence inviting Hawaii to membership and recommended that the Association not join the League. The Council agreed with Dr. Doolittle's recommendation.

Board of Health re X-Rays: Letter was read from Board of Health proposing to raise the rates to be paid for x-raying medically indigent non-plantation tuberculosis patients from \$1.50 to \$2.00 per plate. It was voted to accept the fee of \$2.00. Dissenting vote by Dr. Withington who thought \$1.50 was sufficient.

Publicity: Letter from Dr. Arnold was read suggesting that the unfavorable publicity regarding the entry of Hawaii doctors into military service be corrected. It was agreed that the arguments given in the discussion of this subject be turned over to the Honolulu County Society's publicity committee.

Legislation: Several matters brought to the attention of the Council were ordered referred to the incoming legislative committee for consideration, viz:

Legislation to insure proper qualifications re coroner

Exemption of the association from personal property tax

Seek library appropriation from tax funds.

It was agreed that recommendation be made to the incoming president to stagger members on the Legislative Committee to assure continuity of membership.

Nominations: Dr. Withington, appointed by the President as Chairman of the Nominations Committee said the presidency this year should go to Kauai but did not think this should be done during the war. Dr. Wallis, councillor from Kauai agreed.

Finances: Registration fee. Dr. Doolittle questioned the propriety of a registration fee for the annual meeting. The Councillors from the outside islands were unanimous in their feeling that such a fee was in order.

Audits. Dr. Doolittle presented audited report for the fiscal year ending May 31, 1943 which was not ready until March of this year, and reported that the association was found to be financially sound. The auditor in that report recommended that since the annual meeting is usually held during the month of May and it is obviously impossible to present an audited report for a period closing at the end of that month, the fiscal period be changed to close at the end of February. This recommendation was followed and audited report for the period May 1943 to February 1944 was presented, which also found the association sound.

Budget. A budget was submitted after the example of former years.

President's trip. In discussing the budget, the councillors from the outside islands urged that the President make the annual visit to the other islands as provided for in the by-laws and for which \$100 is set aside annually for expenses. It was also thought to be helpful if the secretary made a similar trip.

Action: It was voted that the President make a visit to the outside islands at least three months prior to the annual meeting, or upon the invitation of the outside island societies.

Treasurer—term of office. The recommendation made at the September, 1943 Council meeting by the finance committee that the treasurer's term of office be changed to three years and that he be selected from among the past presidents was discussed.

Action: It was voted that the Council recommend this change to the House of Delegates.

Dues. Since the association had a balance of \$4,300.00 the question was raised as to whether the dues for the coming years be \$15.00 plus \$2.00 journal subscription, or whether dues be \$13.00 plus \$2.00.

Action: It was voted that dues be \$15.00 plus \$2.00 for journal subscription.

Library appropriation: It was agreed that the same annual appropriation of \$500 be made to the library as in former years.

Salaries: It was agreed to give the secretary a 20 per cent bonus instead of a raise in salary.

MINUTES OF MEETING HOUSE OF DELEGATES

Friday, May 5, 1944, 3:30 P.M., Mabel Smyth Auditorium

Present: Roll call showed the following officers and delegates present:

President—Douglas B. Bell
Vice President—F. J. Halford (Honolulu)
Vice President—M. H. Chang (Hawaii)
Vice President—W. B. Patterson (Maui)

Delegates:

A. Orenstein—Hawaii
M. Yoshina—Hawaii
J. M. Kuhns—Kauai
John Sanders—Maui
A. G. Schnack—Honolulu
Arthur Davis—Honolulu
Ng-Kamsat—Honolulu
Edmund Ing—Honolulu
Peter Irwin—Honolulu
W. H. Wynn—Honolulu
Sanford Katsuki—Honolulu
L. A. R. Gaspar, Jr.—Honolulu

Reports: The following reports were read and upon due action voted to be accepted and placed on file:

Reports of Component Societies:

Hawaii County—by Dr. Orenstein (Exhibit A)
Maui County—by Dr. Sanders (Exhibit B)
Kauai County—by Dr. Kuhns (Exhibit C)
Honolulu County—by Dr. Halford (Exhibit D)

Report of the Secretary:

Read by Dr. Bell in the absence of the Secretary.
(Exhibit E)

Report of the Council:

Read by Dr. Bell in the absence of the Secretary.
(Exhibit F)

Reports of Committees:

Committee on Psychiatry & Neurology—by Dr. Kepner (Exhibit G)

Committee on Health Education—by Dr. Lee.
(Exhibit H)

Journal Committee—by Dr. Arnold. (Exhibit I)

Mabel Smyth Building Committee:

Dr. Phillips reported that the building is now clear of debt and has a healthy balance of approximately \$10,000 in the bank.

Reading of the Treasurer's report was postponed, but is included as Exhibit J for the purpose of record.

The meeting adjourned at 4:30 to meet again at 12 noon on Saturday at the Pacific Club.

SUMMARY OF ACTIVITIES OF THE HAWAII COUNTY MEDICAL SOCIETY

EXHIBIT A

A. ORENSTEIN, M.D., Secretary

Scientific

The medical personnel of the armed forces have continued to attend meetings and to contribute materially to the interest of scientific sessions. The addition of a pathologist to the staff of the Hilo Memorial Hospital has added a great deal to the scientific programs. During the year, the Society was the guest of the Kamauela and Mt. View Hospitals at dinner meetings. Scientific papers included:

Clinical and Pathological Aspects of Acute Infectious Hepatitis by Capt. C. J. Roberts and Lt. F. Click.

Pasteurella Pestis Infectious by Dr. C. L. Carter.

Weil's Disease by Drs. T. Keay and J. E. Alicata.

Primary Atypical Pneumonia.

Cerebrospinal Meningitis.

The Use of the Paget Dermotome.

Other papers given during the year included:

Blood Dyscrasias Occurring During Anti-Luetic Therapy by Dr. I. Larsen.

Ocular Manifestations of Neurological Lesions by Dr. H. E. Crawford.

Practices in Child Health Conferences by Dr. S. M. Wishik.

Symposium on Dengue Fever by Drs. A. Orenstein, Norman Sloan, and L. Bernstein.

Peptic Ulcer, colored talkie.

Primary Carcinoma of the Liver by Dr. C. B. Brown.

Medical Aspects of Action at Tarawa by Lt. J. Stewart.

We were extremely fortunate to have had Dr. F. Lahey talk to us on Carcinoma of the Colon and Rectum, Ulcerative Colitis and Regional Ileitis.

Public Health

Poliomyelitis: The Society requested the O.C.D. to send a nurse to Honolulu to learn the Kenny treatment. This was done.

Pertussis: The Society has always been in favor of pertussis vaccination of children but until this year, the Board of Health has not. The recent recommendation of combined diphtheria and pertussis immunization was welcomed by a number of the Society's members.

Weil's Disease: The survey of this disease, started last year by the HSPA and the University of Hawaii, is continuing. This Society has expressed the need for laboratory facilities in the Board of Health laboratories for the diagnosis of this disease, but to date no action has been taken.

Tuberculosis: The survey of public school personnel was completed during the year; Dr. Leslie, medical director of Puuamale Hospital, reported finding 2 per cent clinically significant tuberculosis in this group of 782, and 3 per cent cardiac pathology. It was pointed out during the year, that there are insufficient beds for cases of tuberculosis. The Society wrote to the Governor and other legislative bodies but to date, nothing concrete is in evidence.

The Society continues to cooperate with the local Tuberculosis Society, Puuamale Hospital and school authorities in various tuberculosis surveys.

Dengue Fever: A meeting of the Society was devoted to this topic. Invited to attend were officials of the O.C.D., the Board of Health, the Army and Navy, and the Dept. of Public Welfare. The official civilian and military agencies were apparently doing their utmost to prevent an epidemic on this island. The O.C.D. Hospital at Olaa was suggested as the logical site for isolation of cases and plans were made accordingly.

Plague: Dr. S. R. Brown was appointed to serve on the Plague Commission.

Typhoid Immunization: The Society agreed to charge \$1.00 for typhoid booster shots.

Food-handlers' Examinations: The Society expressed dissatisfaction with the new regulations of the Board of Health. A committee appointed to study the matter recommended among other things: (1) pre-employment examination to include chest x-ray, serological test for syphilis, stool examination or rectal swabs for typhoid, intestinal parasites and related diseases; (2) an annual cursory inspection and a thorough examination at 3- to 5-year intervals; (3) issuance of certificate by the Board of Health rather than private physician; (4) placarding of symptoms of infectious diseases at the site of employment as a means of educating employer and employee.

The report of the committee was sent to Dr. Wilbar who suggested meeting with the Society to discuss the matter.

Miscellaneous

Peacetime Blood Bank Insurance Program: The recent addition of Dr. L. Hirsch as pathologist to the staff of the Hilo Memorial Hospital has created new interest in this program. Dr. Hirsch has worked out a program together with the Junior Chamber of Commerce and the O.C.D.

Sex Education: The local high school is interested in sex instruction of its students. The booklet, "Facing Life," by Dr. Nils Larsen, was studied by a committee who indorsed it. However, the Society will not sanction on moral and religious grounds a mass sex education program as a unit, but individual members will participate in the program if approached.

Shortage of Graduate Nurses: A survey of the needs for this island was conducted. The O.C.D. was consulted about the present shortage. Nothing concrete is in sight.

Procurement and Assignment of Physicians: Dr. C. L. Carter was elected representative of this island on the Territorial Advisory Board for procurement and assignment.

Military Dependents Program: Dr. S. M. Wishik of the Bureau of Maternal and Child Welfare was invited to discuss the matter of obstetric and pediatric care for military dependents.

Medical Service Plans: A committee was appointed to study this matter and other matters pertaining to the economic aspects of the practice of medicine to which one meeting was entirely devoted. A very comprehensive report was submitted and the Society recommended: (1) the adoption of a minimum basic fee schedule—a committee was appointed to formulate a schedule; (2) the adoption of one

and one only plan in the territory and that plan should be the plan of the Territorial Medical Association; (3) favoring the HMSA plan provided that: (a) hospitals should not be paid for the services rendered by physicians (pathologists, radiologists and anesthesiologists); (b) exclusions, waiting periods and limitations be eliminated as much as is consistent with economic soundness; (c) the part-payment principle of the Kahuku plan be included.

Personnel

Of the 42 physicians practicing on the Island, 40 are members of the Society. Several changes have occurred during the year:

Dr. F. A. St. Sure was transferred back to Maui. He was replaced as a plantation physician at Hakalau by Dr. R. P. Wipperman, formerly at Naalehu.

Dr. Wipperman's place at Naalehu was taken by Dr. H. W. Kurashige, formerly at Kona.

Dr. H. M. Sexton has been accepted as a transfer from the Honolulu County Society and is now associated with his father, Dr. L. L. Sexton.

Dr. L. Hirsch has been accepted as a transfer from the Honolulu County Society and is now serving as pathologist for the Hilo Memorial Hospital. He is a welcome addition after all these years during which we have not been favored with the services of a pathologist.

Dr. L. Bernstein, Health Officer for the Island, attached to the U. S. Public Health Service, was accepted as a service member.

Dr. T. Kutsunai, a member of the Society, is still on the mainland where he is taking post-graduate work.

recommended that all residents of the Territory have a yearly "booster" typhoid injection.

An Advisory Committee to the Department of Public Welfare was appointed. It met with officials of that department on two occasions and discussed who was eligible for help from public welfare funds, etc. Also increased payment to government physicians for indigent work was discussed.

Legislation. The Society voted unanimously that it was opposed to any lowering of the qualifications for the position of Territorial Commissioner of Public Health.

Medical Service Plans. The Society has requested the Territorial Association to have the HMSA make a survey on Maui to see if it can extend its plan to Maui or work out a new plan for Maui.

Personnel. Dr. F. A. St. Sure, Sr., was made an honorary member after more than 30 years of service. Dr. Homer Benson transferred from Molokai to Honolulu. Dr. Hawley Seiler moved from Paia to Molokai. Dr. Shapiro moved from Pukoo, Molokai, to Hana. Dr. Dwight Baldwin, honorary member, died.

Library. Dr. George von Asch was appointed in charge of the Library. Arrangements were made with the Maui County Free Library to keep our books and journals but before the Library was organized we were notified that there was not enough room in the County Library. Dr. McArthur was asked to investigate the possibilities of securing a room for our library in the Malulani Hospital and he later announced that he had found ample room in the doctors' room there. We have been given many books and journals by the Honolulu County Library during the year and with what we already have we would have a fair Library if it were organized. Dr. Patterson has appointed a Library Committee to organize a library.

O.C.D. During the latter half of the year there has been a relaxation of medical defense activities. Puunene and Malulani Hospitals are in use again. An O.C.D. hospital is in operation at the Baldwin Old Men's Home. The Blood Bank has been transferred from the Puunene Hospital to the O.C.D. Hospital.

Dr. McArthur resigned as medical head of the O.C.D. to be replaced by Dr. F. A. St. Sure, Jr.

Social. The first President's Dinner Party was held this year. Twenty-eight members and their wives attended with nine local guests and thirty-five military guests.

SUMMARY OF ACTIVITIES OF MAUI COUNTY MEDICAL SOCIETY

EXHIBIT B

W. B. PATTERSON, M.D., Retiring Secretary

Scientific. The Society has not yet returned to its regular meetings on the second Tuesday evening of every second month because of the difficulty of night driving. Instead meetings have been held at the Wailuku Hotel at such times as a speaker could be obtained. Dr. McArthur, Chairman of the Program Committee, has done a fine job in arranging programs and we have had ten scientific meetings as follows:

A Clinic on the Present-day Treatment of Gunshot Wounds of the Extremities by Colonel Bryant and Staff.

Atypical Appendicitis by Lt. Comdr. Ebeling.

Present-day Use of Sulfonamide Drugs by Major Coyle and Staff.

Use of Neo-Arsphenamine in Early Osteomyelitis and Treatment of Compound Fractures by Lt. Comdr. LeCocq.

Psychoneuroses and the War by Major John Turiga.

Reactions to the Re-Administration of the Sulfonamide Drugs by William B. Patterson, M.D.

Common Skin Lesions, illustrated by colored slides with a discussion of their treatment by Dr. Harry Arnold, Jr.

Causes of Backache in Laborers by Dr. Steele Stewart.

Problems in Infant Feeding by Dr. Pauline Stitt.

Peptic Ulcer, motion picture prepared by Lahey Clinic.

This is the greatest number of scientific programs the Society has had in any one year. Attendance has been 60 per cent of the active members excluding the members living on Molokai, Lanai and at Hana who are unable to attend because of the distance. Dr. Wilkinson came from Lanai for one meeting.

Public Health. The Society recommended to the Board of Health that pertussis and tetanus toxoid be combined with diphtheria toxoid in immunization of children. Also it

SUMMARY OF ACTIVITIES OF THE KAUAI COUNTY MEDICAL SOCIETY

EXHIBIT C

I. UMAKI, M.D., Secretary

The Kauai County Medical Society conducted regular monthly meetings at the Wilcox Memorial Hospital. Meetings were well attended.

Medical Prepayment Plan. The society voted to establish some form of medical prepayment plan for Kauai. In subsequent study of the various plans including the Aiea, Kahuku and HMSA plans it was felt that the latter plan was most feasible for the island. It was also felt that the various islands should adopt a uniform plan so that benefits would be reciprocal. Mr. Reginald Carter and Neal Iferson of the HMSA were invited to discuss the plan with the society as well as with interested employers. It was voted to adopt the HMSA plan on Kauai on a fee schedule similar to the one adopted by the Honolulu County Medical Society. Organizational work is now proceeding.

Medical Library. It was voted to establish a medical library on Kauai through assessment of the members, said library to be situated at the Wilcox Memorial Hospital.

The Mental Hygiene Program. The Mental Hygiene Program was discussed at various meetings and it was the opinion of the members that the program as carried out previously on Kauai was unsatisfactory and that the solution of the problem for the outside islands would be the employment of a resident psychiatric social worker. Recommendations to this effect were made to the Territorial Mental Hygiene Association and the Board of Health.

EMIC Program. The problems connected with the EMIC program was brought up at various meetings. It was obvious that misunderstanding between individual doctors and the Bureau of Maternal & Child Health in the administration of the EMIC program was due to a lack of knowledge on the part of the local doctors regarding the administrative policies of the Bureau as directed by Washington.

Clinic and discussion meetings were held by the society with the following members of the Board of Health during their visits to Kauai, Drs. Stitt, Stewart and Wishik.

SUMMARY OF ACTIVITIES OF THE HONOLULU COUNTY MEDICAL SOCIETY

EXHIBIT D

R. L. HILL, M.D., Secretary

Industrial Accident Fee Schedule. The Committee worked throughout the year on a revision of the industrial accident fee schedule. This was presented at the county society annual meeting and will come up for discussion and adoption at the society's next meeting.

Post-Graduate. No post-graduate courses were arranged during the year because of the travel difficulties.

Committee on Forms of Medical Practice. Our committee this year had only three meetings and its activity was chiefly to review HMSA cases referred to it for settlement.

Scientific Meetings. Monthly evening meetings were resumed instead of assembling every Thursday morning as had been done since the war. The Thursday meetings were of necessity rather hurried affairs and it had become customary for the Board of Governors to conduct most of the society's business, only passing on to the general membership such items as seemed particularly suitable for their consideration. The society was invited to scientific programs at the U. S. Naval Hospital, Aiea; the Territorial Hospital and the Army's 204th General Hospital at Kaneohe. All of these outside meetings had good attendance, but with the exception of two meetings, the home meetings—one devoted to a symposium on Penicillin and the one at which Dr. Lahcy was guest speaker—the attendance has been deplorably small.

Library. Our Library had a substantial increase in budget allotted to it in the past year which has permitted a splendid advancement in its growth. Details of the year's accomplishments have been covered in the Library column of the HAWAII MEDICAL JOURNAL'S November issue.

The highlights of the program for the year, were:

- (1) Improvement of service as a result of better organization.
- (2) Completion of catalog and the beginning of a union catalog of medical journals available in the community.
- (3) A large number of acquisitions—both journals and books as gifts from other libraries and individuals. In addition to the

regular subscription to journals, a fair number of books were purchased from a list of recommendations made by some 30 physicians in the various specialties.

- (4) Through the part-time service of our bookbinder, 193 volumes were complete from May 1, 1943 to March 31, 1944. The quality of this work is excellent and materially increases the value of the journals in the reference library. Beginning in February, arrangements were concluded to enable the bookbinder to bind books for individual physicians on a fee basis.

It is becoming increasingly evident that the future growth and operation of the library will demand the services of a full-time librarian in the near future. The start made by an endowment fund this year, may permit this, as well as other greatly needed improvements in the library service.

Medical Milk Commission. The commission met six times during the year and an effort was made to see that the standards of certified milk were maintained in the community. The commission in making its annual report presented the following question: "Should the certification of milk which does not measure up to rigid standards required by the national association, continue?" Generally it was felt that the dairies whose milk did not meet the requirements be given warning and be put on a thirty-day probationary period to try to meet the standards.

O.C.D. For the Preparedness Committee the past year has been one of continued rapid improvement in the security of the islands from enemy attack and the actions of the Medical Service of the OCD have been primarily directed toward reducing the scale of operations without decreasing the efficiency of preparation. A full report of the OCD activities for the year will appear in the HAWAII MEDICAL JOURNAL.

Convalescent-Nursing Home. Much progress has been made during the year toward the achievement of a convalescent-nursing home. In April of last year a survey was made of the membership to find out if a need for such a home existed. The survey demonstrated that it did. Along with others interested in the problem, the society laid the matter into the lap of the Chamber of Commerce in January asking it to coordinate the efforts of the various agencies and find means of making such a home possible. The Chamber satisfied itself of the need, a site for such a home is under consideration, and the Chamber is ready to initiate the raising of a fund of \$250,000 to start the project going.

Hospital Survey. It was the Honolulu County Society's active interest also which caused the Chamber of Commerce to undertake a survey of the civilian hospitals. The findings of Captain Johnson and Dr. Onstott, who conducted the survey, will be discussed at the breakfast meeting on Saturday morning.

Senate Bill No. 139. Arrangements were completed with the City and County and Department of Public Welfare to pay for doctors' services rendered to the medically indigent patients under the provisions of this bill. Since October the hospitals of the city have been adding 20 per cent for professional services to their bills for the hospitalization of these patients and as his money is collected from the City and County and Department of Public Welfare, it is turned over to the society. To date all of the money so received has been turned into the Library Endowment Fund.

Library Endowment Fund. Toward the end of the year, an attempt was made to raise a fund for library purposes. Each member was solicited by letter and to date the membership has responded to the tune of \$20,000. It is planned to draw up plans for the administration of this fund so that it will best serve the purposes of the library.

Membership. The Honolulu County Society at the time of its annual meeting had a total membership of all classes of 263. Of these 15 were Honorary members, 15 service members and 22 were members in active military service.

REPORT OF THE SECRETARY

EXHIBIT E

A. V. MOLYNEUX, M.D., Secretary

The total regular membership of the Association is 272, an increase of 11 over the previous year. By counties this membership is made up as follows:

	REGULAR MEMBERS	MEMBERS IN SERVICE	SERVICE MEMBERS	ASSOCIATE OR LIFE	HONORARY MEMBERS
Hawaii	39	....	1	1	1
Honolulu	211	22	15	15	15
Kauai	14	5	....	1	2
Maui	17	5	....	1	1
	281	32	16	18	19
Total all classes—347.					

The total number of physicians practicing medicine in the Territory as of April 1, 1944 is 297 exclusive of doctors in armed forces and detained. Of those eligible, 272 belong to the Association, making 94.6 per cent, as compared to 88 per cent last year.

REPORT OF THE COUNCIL

EXHIBIT F

A. V. MOLYNEUX, M.D., Secretary

The Council met five times during the year—in September, November, December, February and March. At none of these meetings were any but Honolulu Councillors present, but minutes of all meetings were sent to the Councillors on Kauai, Maui and Hawaii, and copies to either the Presidents of Secretaries of those societies were sent.

September Meeting

Mabel Smyth Building. Drs. Phillips and Halford were asked to remain on the Board of Management of the Mabel Smyth Building until the next annual meeting, the House of Delegates having neglected to make new elections at the annual meeting. Approval was given at that time also for the medical association to share its space on the second floor with the Hawaii Mental Hygiene Association for a trial period of three months. This was later extended to a permanent arrangement on a rental basis to the building.

Journal. A statement of income and expense for the JOURNAL'S publication was submitted at this meeting and showed a satisfactory gain in operations. It was voted to enlarge the editorial staff by adding the President of the Territorial Medical Association and two other members. Capt. Pleadwell and Dr. Enright later were selected in addition to Dr. Bell ex officio.

Finances. Report was made of a joint finance meeting of the Honolulu County Medical Society and the Territorial Association officers—it was thought wise to consider the finances of both organizations before taking action on a budget for the year. The committee's recommendations were adopted as follows:

- (1) Appropriate \$500.00 to the Honolulu County Library.
- (2) Make the Treasurer's term of office 3 years instead of 1.
- (3) Continue Treasurer's bond for \$1,000 rather than \$5,000 suggested.
- (4) Authorize audit of association's books at a cost of \$50.00.
- (5) Since copyright and mailing regulations do not permit journal subscription as part of association dues, an assessment of \$2.00 per member to cover subscription was approved.

November Meeting

Medical Service Plans. The November 11th meeting was devoted entirely to a discussion of plantation medical service plans. A comparison of the Kahuku, Aiea and HMSA plans was made and indications were that plantation managers were interesting themselves in such plans. The possibility of adjusting the HMSA plan to meet plantation conditions was discussed. It was thought wise at that time for the medical profession officially to approve a plan for recommendation to the plantations, and it was voted, "to approve the Kahuku plan and disapprove the Aiea plan; that a letter setting forth the reasons for approval and disapproval be sent to the plantation doctors, and that a meeting be had with the factor companies."

A letter as directed was sent to all plantation doctors, but it was not necessary to have a meeting with the factor companies, the HMSA was able to negotiate with the Health Committee of the HSPA and with the Honolulu Plantation Company manager, with the result that the HMSA plan is today in operation at Aiea. The HMSA sent a proposal of a plan to each island and at the March 30th meeting of the Council it was reported that Kauai and Maui were ready to go ahead with HMSA and Hawaii County was interested in having the Territorial Association adopt a territorial-wide plan.

December Meeting

Convalescent Home. The December meeting was called hastily to consider territorial-wide endorsement by the medical profession of a convalescent-nursing home which endorsement apparently was needed to assure the interest of certain individuals willing to give funds for such a home. Unqualified approval was given, subject to replies to be received from the county societies which had been requested by letter to make a hasty survey of their society as to such endorsement.

Delegate A.M.A. Credentials were signed for Dr. Pinkerton, Delegate for 1943 and 1944.

Procurement and Assignment. Request for appointment of a chairman for the islands for the Procurement and Assignment Service was reported. It was felt that assignment should be from among the governing board of the Medical Association and Dr. Pinkerton was chosen as such representative in view of the opportunities afforded him on his trips east as delegate to the A.M.A. Dr. Pinkerton assured the Council that he would take no action without consulting it.

February Meeting

Procurement and Assignment. The next meeting of the Council was called on February 16th for the express purpose of submitting for the Council's approval a committee to assist Dr. Pinkerton with Procurement and Assignment. Drs. Hodgins, Benyas, Pleadwell, and Fred Lam were approved for such a committee. Separate boards for the outside islands were not considered necessary since the doctors on all the islands were known to the Honolulu men, but it was thought desirable to have an Advisor to the committee from each island, the selection of these to be left to the Honolulu board.

EMIC Program. The EMIC program (that is, the Maternal and Infant Program for service families) was brought to the attention of the Council for the first time at the February meeting by Dr. Phillips reporting on a radio broadcast telling pregnant women that their private doctors would attend them, the government paying the cost. It was apparent that this program had gone into effect in Hawaii without the Board of Health informing or consulting the medical profession in any way and it was voted by the Council that the Board of Health be asked to return to its

former relationship with the medical profession whereby the two bodies work hand-in-hand. A committee was appointed to consult with the bureau head and the President of the Board of Health regarding the EMIC program.

Pregnant Women in Industry. The attention of the Council was directed to a program contemplated by the Bureau of Maternal & Infant Health encouraging pregnant women to remain in industry.

Typhoid Re-vaccination. The Council took action recommending to the county societies that the immunization campaign be carried on on the same basis as in 1942 at a charge of \$1.00 per shot, the Board of Health furnishing the vaccine.

Annual Meeting. It was agreed to have an annual meeting early in May, and that consideration be given to invitational papers from outstanding service personnel.

March Meeting

Psychiatric Unit. At the March 30th meeting, endorsement was given to the Queen's Hospital to seek funds under the Lanham Act for the construction of a 50-bed psychiatric unit to replace present inadequate facilities.

Convalescent Home. It was reported that all the outside counties had given approval to the promotion of a convalescent home.

Procurement and Assignment. It was reported that the War Manpower Commission had appointed Dr. Pinkerton Procurement and Assignment Chairman for Hawaii.

EMIC Program. Report was made by Dr. Phillips of the meetings had with the Board of Health on the EMIC program, presenting the committee's findings after very careful consideration of the plan. The digest, background, objections, status of the program in Hawaii as presented by Dr. Phillips, together with a statement of policy adopted by the Council, have meanwhile been mimeographed and sent to every individual member of the Territorial Medical Association. This material also went to the members of the Board of Health and to each county society for consideration, with notification that the matter would be discussed at the annual meeting.

Medical Advisory Committees. Approval was given to the names submitted for the Medical Advisory Committees to the Bureau of Maternal and Child Health and Crippled Children, these committees to be standing committees of the medical association and not committees of the Board of Health.

Western States Public Health League. A committee of three was appointed to study the proposal for participation by the Territorial Association in the Western States Public Health League, and to make recommendations at the annual meeting.

REPORT OF THE COMMITTEE ON PSYCHIATRY AND NEUROLOGY EXHIBIT G

RICHARD D. KFPNER, M.D., Chairman

Since the last annual report, one meeting of the entire Committee and two meetings of a subcommittee were held. However, considerable business was also transacted through discussion with, and letters to, the members.

The Hawaii Territorial Society for Mental Hygiene, which was begun under the auspices of this Committee, continues to expand its activities and is doing a good job in the community. Assistance was lent them by the Committee and by Dr. Douglas Bell, President, Hawaii Territorial Medical Association, in their work preliminary to establishing an affiliated unit on the island of Hawaii.

The series of psychiatric clinics and lectures at the Thursday morning meetings was completed on March 2, 1944. This series will not be repeated in the near future because of the poor attendance at the Thursday morning clinics generally. Arrangements were made to present a symposium on neuropsychiatric problems in defense workers at a Friday night meeting of the Honolulu County Medical Society, but this presentation was postponed.

The Council approved a recommendation that the name of the Committee be changed to the Committee on Psychiatry and Neurology. This change seemed logical because psychiatry and neurology are so closely related and the Association is too small for a committee on each.

Arrangements were completed for a new section in the HAWAII MEDICAL JOURNAL entitled *Neuropsychiatric Comment*. Papers for the first two issues have already been submitted and have been reviewed by a subcommittee consisting of Dr. Cloward, Dr. Shanahan, and the Chairman. It is hoped that others will submit papers for subsequent issues.

Because of the tremendous number of neuropsychiatric disorders being brought to light by the war, and in some instances precipitated by it, it was believed that our post-graduate courses should be resumed—beginning with one in psychiatry. It was believed that transportation for a speaker could be arranged inasmuch as the personnel of the armed forces would also benefit from such a course. The Department Surgeon, was therefore consulted as to his views on the subject. He was most enthusiastic about having a neurophysiologist brought for a series of graduate lectures and offered to do everything possible to facilitate plans of this Committee and those of the Post-Graduate Committee of the Honolulu County Medical Society (then under the chairmanship of Dr. R. B. Cloward). The Secretary of the American Board of Psychiatry and Neurology, Dr. Walter Freeman, with whom your Chairman has been negotiating unofficially since 1941, is available at this time if final approval can be secured from all concerned.

A number of laws which have operated successfully on the mainland and which have been recommended as model laws have been discussed by the committee. These are (1) the Briggs' Law of Massachusetts; (2) the Illinois Sexual Psychopathic Criminal Act; (3) the Uniform Expert Testimony Act; and (4) the Youth Correction Authority Act. It was decided to scrutinize these laws, as well as our local laws, before reaching any decisions. In the meantime, your Chairman is discussing them unofficially with other interested persons and will make recommendations at a later date.

In spite of the fact that physicians are unusually busy at the present time, it is hoped that more of them will try to take an active part in mental hygiene activities, such as those of the Hawaii Territorial Society for Mental Hygiene, the various groups planning for rehabilitation of returning veterans, etc. It is recommended that such participation be undertaken by the incoming committee.

Grateful acknowledgment of their service on the subcommittee is hereby extended to Dr. R. B. Cloward and Dr. W. M. Shanahan. Acknowledgment of their cooperation is also due the other members of the Committee: Dr. M. F. Chung, Dr. Archie Orenstein, Dr. E. A. Stephens, and Dr. C. L. Wilbar, Jr.

REPORT OF THE HEALTH EDUCATION COMMITTEE

EXHIBIT H

RICHARD K. C. LEE, M.D., Chairman

No meetings were held by the Committee during the year. However, the chairman has kept in close touch with the director of Health Education of the Department of Public Instruction, by following through with the chest x-ray survey of all personnel of that department. Since December, 1942, all school employees then in service, and all new employees entering the service, must have an x-ray of the chest taken. With the exception of the Maui school districts, the original survey of those department employees on Hawaii, Kauai and Oahu have been completed, and new personnel on Maui by the Board of Health mobile unit. The follow up of tuberculosis cases discovered in the survey has already been carried out.

There has been close working relationship between the health department and the school department on the program of venereal disease education for secondary schools. A full-time health education worker has been employed to study the methods and technics, survey the local schools and prepare materials for use in the schools of the Territory.

The present regulation with regard to health certificates passed by the Commissioners of Public Instruction in 1931 is being studied with the end in view of revising it so that it may conform to present day needs and to requirements demanded of employees since that date. When this is completed, it will be submitted to the School Medical Advisory Committee for its consideration before it is presented to the supervising principals and commissioners and the Board of Health for its adoption.

REPORT OF THE JOURNAL COMMITTEE

EXHIBIT I

HARRY L. ARNOLD, JR., M.D., Editor

The HAWAII MEDICAL JOURNAL has continued to be published bi-monthly since the last annual meeting of the Association. There has been no significant change in the size or format of the magazine, and no particular increase in its circulation.

With the beginning of Volume 3, in September, 1943, the editorial staff was increased by the addition of an Editorial Advisory Board, consisting of Dr. James R. Enright, Dr. Frank L. Pleadwell, and ex officio as President of the Association, Dr. Douglas B. Bell. This was done because it was felt that responsibility for the policies of the JOURNAL should be more widely distributed. No other changes in the staff have occurred, though the need for more working assistance has been keenly felt.

With issue No. 3 of Volume 3 (January, 1944) the columns entitled "Progress in Internal Medicine," which had been so long and ably conducted by Dr. Stewart Doolittle, and "Recent Advances in Surgery," conducted by various more or less reluctant surgeons, were combined into a single feature entitled "Clinical Notes." It was felt that this would facilitate the publication of short case reports, descriptions of techniques, and so forth, which did not lend themselves to publication in either of the other two columns.

In the same issue was published the third of a series of special articles on civilian hospital needs. Material for these has been obtained from and in many instances has been written by individuals who possess special knowledge of certain aspects of the problem of the civilian hospital bed shortage. An effort has been made to keep the feature as unbiased and impersonal as possible, and facts rather than opinions or guesses have been adhered to wherever possible.

In general, your editorial staff has found it possible to adhere very closely indeed to the purpose of the JOURNAL as set forth in our anniversary editorial: to provide an archives of the transactions of the component societies of the Association, and to record medical facts pertinent to the Territory of Hawaii.

Your Journal Committee recommends that you continue to finance the HAWAII MEDICAL JOURNAL on the same basis as during the past fiscal year.

TREASURER'S REPORT

EXHIBIT J

S. E. DOOLITTLE, M.D.

The audit for the receipts and disbursements of the Territorial Medical Association for the year ending May 31, 1943 was not completed until March 24, 1944. The Association was then finally found to be financially sound and the previous treasurer honest. The auditor recommended that, since the annual meeting is usually held during the month of May, and it is obviously impossible to present an audited report for a period closing at the end of that month, the fiscal period be changed to close at the end of February to permit a current audit. This was done and again, according to the auditors, Hiu and Dean, the Association is sound financially and the treasurer honest. The auditors' reports for both years are presented.

It is difficult to compare expenditures for a period of nine months with expenditures for the previous period of twelve months. No one ever reads more than one set of figures, however, and no one bothers to worry about what any of them mean as long as they are written in black ink. The Association is solvent to the tune of \$4,343.00 cash on hand and a little more coming in. This is \$1,000.00 more than May 31, 1943 but we will use up that extra grand in the next three months without doubt, and we need some surplus to swing the big-time journal and other expensive undertakings of the Association.

Interesting items from the audit are as follows:

The income from dues was less than the last fiscal year largely because no added assessment was made.

JOURNAL subscriptions are up and advertising down. (Remember this is only for nine months instead of twelve.)

Salaries will amount to the same figure as last year though to date only \$1,350 is spent and journal expenditures are \$2,434.00 as compared with \$3,500.00 for twelve months. It will not cost less to print the JOURNAL but income will probably be about the same, actual expense does not run much over \$2.00 per member and if previous mimeographing cost of annual transactions and special announcements are considered, it is probably nearer a dollar or less per member per year—good!

A budget is submitted after the example of former years—but it is not of great importance, unless someone has a new expensive idea which has not come to the treasurer's notice. This budget is so simple as to be childish; it hardly seems proper for figures to be so (after tax computations, et cetera).

The treasurer suggests its adoption as a guide, with allowance for library expenses, as in the past, of \$500 and the President's inter-island trips if he can be persuaded to leave his own lucrative practice during the war-time boom (the writer is quoting the laity).

It is also suggested that dues remain the same, i.e., \$15.00 per individual, which includes the \$2.00 subscription rate for the JOURNAL.

It is further suggested that the members consider whether a fee of \$5.00 should be made for the Territorial Meeting in addition to luncheon, picnic and other food costs. The treasurer believes that this is too much and that any fees collected should be returned.

BREAKFAST ROUND TABLE

Saturday Morning, May 6, 1944, 7:30 A.M.,

Mabel Smyth Building

Present: Thirty-three members. Dr. A. V. Molyneux, Chairman.

Honolulu Hospital Bed Survey

Dr. Pinkerton presented the highlights of the recently completed survey of hospital beds and needs, made by Captain Lucius W. Johnson, M.C., U.S.N., with commentary by Dr. Robert Onstott, U.S.P.H.S. This survey was undertaken as a result of the Honolulu County Medical Society asking the Chamber of Commerce to investigate the hospital bed shortage and find means of effectuating a program of expansion. A summary of the survey's recommendations are as follows:

Children's Hospital: New building of 120 beds; laboratory, surgery and contagious unit; develop out-patient department.

Kapiolani Hospital: New building, 50 beds; power plant, laundry and other facilities.

Kuakini (Japanese) Hospital: Develop as low-cost general hospital, without racial affiliations. New building of 100 general beds, 15 additional obstetrical beds, 12 additional beds for children; new culinary, surgical and other facilities, develop out-patient department.

Queen's Hospital: Wing now under construction, 100 beds; new building 125 general beds; new mental hygiene unit 50 beds; develop out-patient department.

St. Francis Hospital: New building with 66 beds and other facilities; new building 200 general beds; develop out-patient department.

Territorial Hospital: New building 400 beds.

Leahi Hospital: New buildings 500 beds.

Waimano Home: Convert OCD buildings for additional beds.

Maluhia Home: New institution, 300 beds to start.

Convalescent-nursing Home: About 500 beds needed. Consider combining with new Maluhia Home.

General Recommendations:

All general hospitals qualify for approval by American College of Surgeons.

Improve instruction at Queen's Hospital for interns and residents.

Improve nursing instruction, especially in pediatrics. Chamber of Commerce Public Health Fund utilized for educational projects connected with hospitals.

Small permanent committee to supervise all hospital construction and development.

Expand Honolulu Hospital Council.

Develop School for training technicians.

Post-graduate school of tropical medicine under University of Hawaii.

Central plantation hospital on each large island, with satellite dispensary at each plantation.

In commenting on these recommendations Dr. Pinkerton stressed the need for developing out-patient service attached to all the hospitals, and reported that there was no desire on the part of Palama Settlement to continue its out-patient clinics if it could be set up at other institutions.

Kuakini Hospital, he said, needed broadening and modernizing and a complete revamping of its administrative set-up; Children's Hospital likewise needed a proper administrative set-up, that a new hospital was not all that was necessary, and it was recommended that the present building be abandoned.

The nursing education program needed expanding and improvement.

As far as the plantation hospitals were concerned, which were touched on only lightly in the report, the time seems to have come when the plantations should give up each one having an individual hospital and combine into larger well equipped hospitals, thus effecting a saving in manpower.

Discussion

CAPTAIN JOHNSON. The principal thing is to get the whole community interested in this. Dr. Onstott and I agree that the projects already approved and planned should be completed—that includes the additions to Queen's now under construction, the expansion of St. Francis that will be started soon, the 50 beds at Kapiolani, and the urgent need for a reconstruction of the Children's Hospital. We agree that there is necessity for a great increase at Leahi and at the Territorial Hospital, and Dr. Shanahan's need for 50 beds in the mental hygiene unit—all of these things we agree on.

What we do not agree on is the number of additional beds needed in the future, but that is all right too, the decision regarding this should be in the hands of the permanent hospital committee. I am not familiar enough with the local government to say how this committee should be appointed, constituted or authorized.

The community has need for hospitals of three price levels—the high-priced hospital would be Queen's; the moderate-priced St. Francis and Kuakini should be developed as the community's low-priced hospital. This does not mean that the person who pays the lower price will get poorer medical attention. We all know that the paupers frequently get the best medical service because all the best doctors want to be on the staffs of these hospitals.

If the staff of the Kuakini Hospital is broadened so as to accept doctors of other races, reciprocity on the staffs of other hospitals should be expected too.

DR. ONSTOTT. One of the problems is that of meeting the acute need at the present time. There seems to be a threat that the OCD hospital will be closed. If that should happen before alternate arrangements are made, it means that the community has no cushion since all the hospitals are 100 per cent full. With the addition at Queen's we can get along if nothing disastrous happens. It would be well to have the community support Sacred Hearts until we have a cushion.

DR. ARNOLD, SR. I have not seen Dr. Onstott's report and only the newspaper resume of Capt. Johnson's. I am more pleased than I can say. It is the first step to getting somewhere.

There are several problems that we should think about:

(1) How will the operation of these hospitals be financed? Endowments and public subscriptions to the hos-

pitals will no longer suffice to operate them. Some way must be found for the government to participate and still keep the hospitals in the hands of altruistic persons.

(2) In the case of Leahi, will it be wise to put several million dollars into such a hospital. It is true that the present facilities must be expanded to take care of those needing hospitalization and those to be found with various case-finding programs, but may there not be a shrinkage in patient load say 10 years from now, or is it not likely that some new method of handling tuberculosis will be found that will not entail the enormous hospital overhead as at present?

DR. LARSEN. The plantations have been working on the scheme of centralized hospitals and there is no question that it will come in time. The plans are on paper and the architects of the HSPA have worked out the districts where central hospitals are feasible. About nine out of ten plantation doctors are in favor of it.

I like Dr. Arnold's idea that there are variables. The Lihue hospital was built on the basis of a certain population, but a shift occurred and instead of having 80 per cent occupancy, it dropped to 40 per cent. We are cutting down hospital days to 8.5 per case; with the sulfa drugs we may be able to reduce them to five days.

DR. CASS. One cannot stop at planning hospital buildings, something must be done about straightening out the administration and the nursing problems.

DR. WITHINGTON. Dr. Arnold and Dr. Larsen have suggested in relation to Leahi that we may be left with unneeded large hospitals on our hands. New fields are always being opened by new treatment and case finding. It would be a mistake not to put the program as high as it is.

Child Guidance Clinic

Dr. Shanahan outlined the progress made in the mental hygiene program to date, viz:

- (1) Treatment clinic established.
- (2) Travel clinics to the three islands in operation; two workers already on outside islands, a third one under negotiation.
- (3) Consultation service is provided to all community agencies.
- (4) Educational program is carried out at the University and in the schools of nursing throughout the city.
- (5) An attempt has been made to build up an adequate mental hygiene library.

There has been no death of patients, in fact, there has been so much work that we have not been able to cover it all.

There is one area of psychiatry we have not done very much about—Child Psychiatry, a specialty in medicine, practiced by physicians who have some knowledge of pediatrics and a general background of psychiatry, and who then for two or three years have specialized training in psychiatry of children. It is in many ways different from the psychiatry of children. It is in many ways different from the psychiatry of adults. It is primarily a medical program and problem. Entering into the behaviour there must first be considered the physical factors, next come mental factors, but a person not qualified to deal with the physical cannot approach child psychiatry.

In a child guidance clinic, the child psychiatrist is the head of the team; there are psychiatric social workers and ordinarily psychologists who work together.

The question of a child guidance clinic will probably come up in the next legislature and the Board of Health wants to know what the responsible agencies think should be provided. It is not anxious to take on this problem but it is anxious to have as good a job done as can be done in the field of mental hygiene.

DR. WISHIK. On the mainland where child guidance clinics have been established, a certain pattern has been followed, and this pattern is similar to that in other parts of the world. The clinic is under the supervision of the physician who has on his staff a psychologist and psychiatric social workers.

We believe it to be the function of the doctors of this community to work for such a service and see to it that it remains in proper hands. Such a clinic should be under medical control.

DR. WILBAR. Where the clinic should be established is a question that should be considered by the medical society. In some places they are set up in health departments, in others they are in the schools and some have been set up in medical societies. We have a need right now. There is no reason to put it off because there is a war. We have a child psychiatrist who is available if we had the facilities.

MINUTES OF MEETING

COUNCIL AND HOUSE OF DELEGATES

Saturday, May 6th, 1944, Luncheon, Pacific Club

Present. Roll call showed the following delegates and officers present:

President—Douglas B. Bell
 Secretary—A. V. Molyneux
 Treasurer—S. E. Doolittle
 Vice President—M. H. Chang (Hawaii)
 Vice President—W. B. Patterson (Maui)

Delegates:

A. Orenstein—Hawaii
 M. Yoshina—Hawaii
 J. M. Kuhns—Kauai
 A. W. Boyden—Kauai
 John Sanders—Maui
 A. G. Schnack—Honolulu
 A. Ng-Kamsat—Honolulu
 Edmund Ing—Honolulu
 W. H. Wynn—Honolulu
 Sanford Katsuki—Honolulu

Councillors:

Paul Withington
 Lyle G. Phillips
 F. J. Pinkerton
 Sam Wallis (Kauai)

Minutes. A summary report of the meeting of the House of Delegates held the previous day was given by the President. Reports of officers, societies and committees only were heard at that time.

Treasurer's Report. Reading of this report was postponed at the Friday meeting for lack of time, and was presented here. After presentation of audited reports for the two years 1943 and 1944, and a discussion by the President of the items in the reports, a budget for 1944-1945 was presented by the finance committee, prefaced by the following report:

The audited report of the association for the 11 months period, May 1942 to May 1943, and a proposed budget for 1944-1945 were reviewed.

The following recommendations are made, and included in the budget presented herewith:

- That the assessment per member for the year be \$15.00.
- That each member be assessed an additional \$2.00 to cover journal subscription.
- That Mrs. Bolles' salary be increased by a 20 per cent bonus.
- That an appropriation be made to the Honolulu County Medical Society library of \$500.00, as has been done in the past two years.

Budget—1944—1945

<i>Bank Balance March 1, 1944</i>	
Bank of Hawaii.....	\$3,615.68
Bishop—Savings account	727.89
	\$4,343.57
<i>Income:</i>	
Dues—272 active members at \$15.00 (not including members in service and Honorary).....	\$4,080.00
<i>JOURNAL</i>	
Advertising	1,200.00
Subscriptions, \$2.00 per member.....	544.00
Other subscriptions and sales.....	200.00
	\$6,024.00
<i>Expenses:</i>	
Salaries	\$2,160.00
Rent	480.00
JOURNAL expense	2,500.00
Library appropriations	500.00
President's inter-island trips.....	100.00
Miscellaneous	200.00
	\$9,940.00
<i>Net Gain</i>	\$ 84.00

This budget was accepted upon due vote.

Elections:

Officers: Dr. Withington, Chairman of the Nominating Committee (consisting of Drs. Strode, Brown and Withington) made a few preliminary remarks before presenting the slate of nominees: (1) that the nomination for treasurer was made with the recommendation in mind made at the council meeting, namely, that the treasurer serve for a three-year period instead of one year and that he be selected from among the past presidents of the association, and (2) that the presidency this year rightly goes to Kauai and that this matter had been discussed with the representatives from the outside islands with the conclusion that it is desirable to have the president in Honolulu under present conditions.

The following names were presented:

- Eric A. Fennel—for President
- L. A. R. Gaspar—for Secretary
- Lyle G. Phillips—for Treasurer

Drs. Fennel and Gaspar were elected by unanimous ballot which the Secretary was instructed to cast.

In the discussion preceding the voting for the office of Treasurer, it was pointed out that the term of three years and the condition that the treasurer be selected from among the past presidents is only a recommendation from the Council and that there is nothing in the by-laws to that effect.

Dr. Ing presented the name of Dr. Doolittle for Treasurer. Dr. Doolittle objected to the President and Treasurer both being from the same group, and believed that the selection of a Treasurer from among past presidents for a term of three years was a move in the right direction. He asked Dr. Ing to withdraw his name, which Dr. Ing did.

Upon vote Dr. Phillips was unanimously elected Treasurer.

Councillors: The following names were presented by the Nominating Committee as Councillors:

- H. E. Crawford—Hawaii
- Douglas B. Bell—Honolulu
- L. L. Sexton—Hawaii—was nominated from the floor

Dr. Bell was elected by unanimous ballot. Ballots cast for the Hawaii Councillor resulted in the election of Dr. L. L. Sexton.

Board of Management, Mabel Smyth Building: Dr. Phillips explained that Dr. Halford and he had continued to serve upon instruction from the Council in default of an election last year. He reported that the finances are in good shape, but that there are constant problems regarding management which require a considerable amount of time. He requested election of someone to serve in his place. He felt the situation had come to an impasse and suggested new blood, possibly Dr. Arnold, Jr.

Dr. Pinkerton felt that the auditorium as a source of revenue had been neglected and remarked upon the great use the building has been put to by the service doctors. He was in favor of electing to the board men with stamina to fight for the usefulness of the building and strongly favored continuing Drs. Phillips and Halford on the Board. He offered the following nominations:

- Lyle G. Phillips for 1 year
- F. J. Halford for 2 years

Both nominees were elected by unanimous vote.

Delegates to A.M.A.: Dr. Pinkerton was elected delegate to the A.M.A. for the two-year period 1945 and 1946 by unanimous vote.

The officers for the year 1944—1945 are therefore as follows:

President

Eric A. Fennel

Vice Presidents

- M. H. Chang, Hawaii
- W. B. Patterson, Maui
- D. R. Chisholm, Kauai
- F. J. Halford, Honolulu

Secretary

L. A. R. Gaspar

Treasurer

Lyle G. Phillips

Councillors

- Paul Withington, Honolulu, 1 year
- F. J. Pinkerton, Honolulu, 1 year
- S. R. Wallis, Kauai, 2 years
- R. J. McArthur, Maui, 2 years
- Douglas B. Bell, Honolulu, 3 years
- L. L. Sexton, Hawaii, 3 years

Next Meeting: It was voted to leave the decision of time and place to the Council.

Delegate—A.M.A.: Dr. Pinkerton asked for instructions and it was suggested that he use his influence to definitely help our hospitals in their effort to be accredited for interns.

Child Guidance Clinic: Letter from the Bureau of Mental Hygiene was presented, reading in part as follows:

"There has been considerable interest shown in the establishment of a child guidance clinic in the Territory of Hawaii. It is very possible that before the Territorial Medical Society meets again, this matter will appear in the Legislature and some provision will be made to supply this type of service. The administration of the Board of Health and of this Bureau is interested in securing some statement from the Council of the Territorial Medical Society, concerning their attitude toward the need for a child guidance clinic, the organization of the clinic and any other recommendations possible, including an opinion as to where in the territorial government the clinic should be located. . . . We would appreciate an expression of opinion as to whether or not this work should be medically administered and directed."

Action: It was voted that the House of Delegates instruct the incoming President to appoint a committee of medical men to study this question.

Medical Advisory Committees to the Board of Health: The following summaries of recommendations of the meetings of the committees held May 4th and 5th were read:

Bureau of Maternal and Child Health—Motions of the Committee

On the subject of immunizations

That the Board of Health recommend the universal use of combined diphtheria and tetanus immunization for all children in the Territory and that the Board of Health furnish this material to the physicians insofar as it is possible, at least in the child health conferences and perhaps for all children.

That the Bureau of Maternal and Child Health continue its study on the most advisable method of obtaining pertussis immunization for the children of the Territory.

On the subject of School Health Program

That the committee endorse the school health program sponsored by the Bureau of Maternal and Child Health for all school grades in all parts of the Territory; which program lends itself to modifications to suit the special needs of different areas but aims at the selection of students for examination according to their probable needs and attempts insofar as possible to have the examinations done by a private physician; that the school physician supplement the work done by the private physician; and that emphasis be placed upon the high school level at the present time.

That the Board of Health take steps to increase dental services so badly needed by the school children of the Territory.

On the subject of Emergency Maternity and Infant Care for Military Dependents

That the committee endorse the recommendations of the Council of the Medical Society on this program.

That the Medical Society accept the fee schedule as drawn up by the Bureau of Maternal and Child Health without further discussion.

That a list of specialist in each branch of medical practice be established to include all men who qualify for the board of that specialty by reason for their training and experience rather than limiting their practice.

That a plan be established whereby a physician may hold conference with a colleague in areas where no specialists can be obtained.

That patients be allowed free choice between private physicians and army or navy physicians in all parts of the Territory.

That the Committee express approval of the manner in which the Director of the Bureau of Maternal and Child Health has attempted to take into consideration special territorial needs in the application of the program to Hawaii.

That the Medical Society request that the Director of the Bureau of Maternal and Child Health be given more opportunity by the Children's Bureau for independence of action in deviating from the set features of the national program so that he may collaborate better with the Territorial Medical Society in obtaining more satisfactory modification of the program to meet the special needs of the Territory.

On the subject of Prematurity

That the Medical Society endorse the Board of Health's program aiming at reduction of infant mortality caused by prematurity in the Territory.

On the subject of General Function

That the Committee meet annually at the time and place of the Territorial Medical Society convention and at any other time that special programs necessitate the chairman's calling a meeting and that during the year the Committee will continue to work closely with the Bureau by Correspondence.

Bureau of Crippled Children—Motions of the Committee:

That the Bureau call upon more than one consultant if such seems necessary in arriving at decisions on any case.

That a revised fee schedule be drawn up by the Bureau to conform as closely as possible to the fees established by the Medical Society for Industrial Accidents and for prepayment plans; and that the new fee schedule be distributed to the members of this Committee for their review before it becomes effective.

That cases be treated by different physicians within each specialty in rotation as much as possible.

That the services of the Bureau of Crippled Children be broadened to include congenital anomalies or crippling conditions other than external surgical conditions.

That the Bureau be permitted to pay general practitioners for emergency surgery where attempts to obtain specialized service for the patient would introduce a hazard to the safety of the patient.

That the Medical Society cooperate with the Bureau in research programs aiming at reducing the incidence of crippling conditions among children in the Territory.

That the committee meet annually at the time and place of the Territorial Medical Society convention and at any other time that special programs necessitate the chairman's calling a meeting and that during the year the committee will continue to work closely with the Bureau by correspondence.

Action: It was voted that these be given to the incoming Council for their consideration and action.

Dr. Pinkerton advised that he was instructed by the Board of Health to take these matters up with the Children's Bureau in an attempt to arrange a sliding scale of fees.

General Discussion: It was felt that a greater effort should be made to have the councillors attend the Council meetings throughout the year.

The by-laws provide that the President during his term of office visit the component medical societies. This would be a tremendous lift to the morale of the societies, and should be done preferably a month or two before the annual meeting.

Stress was laid in the Council meeting on the fact that the Legislative Committee should be staggered to assure continuity. It was felt that the same should apply to all of the standing committees—if necessary, the incoming council should recommend a change in the by-laws so that provision is made for hold-over members on all committees.

Action: It was voted that the standing committees be staggered instead of being reappointed annually.

Adjournment: The meeting adjourned at 1:30 to continue the scientific sessions.

Respectfully submitted,

A. V. MOLYNEUX, M.D.
Secretary

Index to Volume 3

BY TITLE, SUBJECT AND AUTHOR

Allison, S. D. and Witlin, B., transmission of gonorrhea through buccal coitus.....	176	Chang, M. L., Hawaii County reports.....	95, 149, 191
Antigens, multiple, for immunization, editorial.....	287	Chang, W. K. (see Chang, C. F.)	
Ambulation, early	269	Child Guidance (see Psychiatry)	
American Board Obstetrics & Gynecology candidates	27	Civilian Hospital Needs (see Hospitals)	
Anesthesia, in a small hospital	159	Clinical Notes	
Argo, W. L., novocaine injection for low back strain....	133	dermatitis from shorts.....	177
Arnold, H. L.		intensive therapy of infectious syphilis.....	175
discussion, Honolulu hospital survey.....	323	management of labor in a patient with diabetes mellitus	291
emergency medical services.....	145, 248	novocaine injection for low back strain.....	133
Honolulu hospital situation.....	46	penicillin therapy of impetigo contagiosa and its allied diseases	292
Arnold, H. L., Jr., and Bell, D. B., kissing bug bites....	121	transmission of gonorrhea through buccal coitus.....	176
Associations — Affiliations		Clinico-Pathologic comment	
American College of Surgeons, Hawaii Chapter.....	201	approval laboratories perform pre-natal serologic tests	91
Hawaii Dermatological Society.....	201	cystic states of the ovary.....	137
Hawaii Society of Clinical Pathologists.....	201	Rh factor: its clinical importance.....	39
H.T.M.A. annual meeting.....	195, 318	the clinical pathologist.....	183
H.T.M.A., transactions 54th annual meeting.....	311	transfusion reactions	231
Society of Roentgenologists.....	201	Cloward, R. B., the rise and fall of medical neurology..	295
Baldwin, W. D., obituary.....	106	Convalescent-Nursing Home	
Batten, G. A., obituary Schattenburg.....	105	(see also Hospitals).....	141, 192, 313
Bell, D. B. (see Arnold, Jr.)		Crippled Children (see Public Health)	
Blood		Cystadenoma of pancreas.....	67
Blood Bank		Cysts, pilonidal	85
Hawaii County report.....	149, 195, 314	D elegates	
Honolulu County report.....	97	A.M.A. report	51
transfusion reactions	231	Council report	317
transfusion therapy in surgery and its relation to the blood bank.....	275	election to A.M.A.....	321
Bolles, E. D.		Maui	197
aloha! editorial	285	Dengue	
Honolulu County report.....	97	Hawaii County report.....	95, 314
Bowles, H. E., sexual sterilization.....	65	significance of present dengue fever epidemic, editorial	25
Brennecke, M. A.		Dermatology	
anesthesia in a small hospital.....	159	dermatitis from shorts.....	177
early ambulation	269	Hawaii Dermatological Society.....	201
By-Laws: Hawaii County report	95	intensive therapy of infectious syphilis.....	175
C ancer		kissing bug bites.....	121
primary carcinoma of liver with hemorrhage.....	161	penicillin therapy of impetigo contagiosa and its allied diseases	292
Cardiovascular Diseases		skin clinics on Maui.....	197
heart disease in Hawaii.....	71	Diabetes mellitus: management of labor in.....	291
Cass, Muriel, discussion Honolulu hospital survey.....	323	Diphtheria (see Immunization)	
Catton, M., convalescent nursing home.....	141	Doolittle, S. E., epidemiology of poliomyelitis.....	29
Chang, C. F., and Chang, W. K., rupture of the uterus	164	Dues and Assessments: Honolulu County report.....	98
		Dysentery	
		bacillary	222
		Maui County report.....	197

- E**conomics, medical (see also Medical service plans)
 C & C and Dept. Welfare patients.....98, 150, 316
 complaints alleged overcharging..... 196
 EMIC program230, 314
 Council meeting 312
 editorial, attention all doctors..... 127
 federally financed obstetrics..... 127
 Kauai County report..... 316
 fee schedule, Dept. Public Instruction..... 150
 crippled children 321
 Hawaii County 193
 Honolulu County 193
 Wagner-Murray-Dingell Bill 193
 Western States Public Health League.....313, 318
- Editorial Board 201
- Editorials
 aloha! Mrs. Bolles..... 286
 American Board of Obstetrics and Gynecology..... 27
 anniversary congratulations to Dr. Walker..... 286
 attention, all doctors! (EMIC)..... 127
 case reports solicited..... 27
 federally financed obstetrics (EMIC)..... 127
 inter-society communications 229
 letter to editor re nursing..... 287
 medical service plans..... 170
 multiple antigens for active immunization..... 287
 neuropsychiatric comment 170
 penicillin 229
 post war planning (hospitals)..... 78
 Procurement and Assignment..... 128
 psychiatric facilities 169
 significance of present dengue fever epidemic..... 25
 sulfadiazine for early bubonic plague..... 230
 survey of Honolulu hospitals..... 285
 syphilis in Hawaii..... 229
 the bedside nurse..... 169
 the EMIC program..... 230
 the EMIC program, a foot note..... 285
 was it murder?..... 77
- Education
 health, report of committee..... 319
 post graduate 316
 school health program..... 321
 sex 314
- Eklund, R. T., Hawaii County report..... 254
- Emergency Medical Services (see War)
- EMIC (see Economics, medical)
- Enright, J. R., multiple antigens for active immunization 287
- Epidemiology (see names of diseases: Dengue, Plague, etc.)
- F**ee Schedule (see Economics, medical)
- Finances
 audits, H.T.M.A. 313
 budget, H.T.M.A.313, 320
 council report 316
- library appropriation313, 320
 President's trip 313
 registration fee annual meeting..... 313
 report of Treasurer.....319, 320
 salaries313, 320
 treasurer's term of office..... 313
- Foodhandlers' Examinations
 Hawaii County report.....149, 191, 192, 314
 Honolulu County report..... 97
- G**age, Helen (see MacLachlan)
- Goddard, O. F., Territorial Hospital:
 proposed new unit..... 188
- Gonorrhea (see Venereal Diseases)
- Gordon, M., Honolulu County report..... 251
- Gynecology (see also Obstetrics)
 sexual sterilization 65
 cystic states of the ovary..... 137
- H**artwell, A. S., and Lam, J. W., heart disease in Hawaii 71
- Hawaii Medical Service Association (see Medical Service Plans)
- Heart (see Cardiovascular)
- Hill, R. L.
 transthoracic subtotal gastrectomy for benign ulcer of the stomach..... 33
 Honolulu County report..... 196
 transfusion therapy in surgery and its relation to the blood bank 277
- Hirsch, L., the clinical pathologist..... 183
- Hospitals (see also Nursing)
 anesthesia in a small hospital..... 159
 bed shortage150, 196
 convalescent nursing home.....141, 303, 316, 317, 318
 general bed shortage..... 98
 Honolulu hospital situation..... 46
 hospitalization of tuberculosis patients..... 145
 hospital staff physicians..... 149
 Kuakini Hospital administration..... 98
 Kuakini venereal disease section..... 98
 Modes of admission or commitment to the Territorial Hospital 237
 need for increased beds for tuberculosis..... 247
 post war planning, editorial..... 78
 preventive psychiatry in relation to the Territorial Hospital 7
 psychiatric facilities, editorial..... 169
 psychiatric unit, Queen's Hospital.....187, 193, 317
 Puumale Hospital bed shortage..... 96
 Sacred Hearts Hospital..... 247
 survey196, 316, 322
 survey of Honolulu hospitals, editorial.....285, 301

the Honolulu emergency poliomyelitis hospital.....	17	Legislation (see also Economics, medical).....	195
the question of a convalescent nursing home.....	141	Council meeting	313
transfer of O.C.D. hospitals to the Army.....	145, 247	Maui County report.....	315
Wahiawa Hospital	248	post war planning, editorial.....	77
world planning for tuberculosis needs	45	Senate bill No. 139.....	316
		Wagner-Murray-Dingell Bill	193
		Library Notes	
I mmunization		accessions	103, 106
diphtheria and pertussis.....	97	bookbinding	102
immunization procedure	95, 321	dietetics	154
multiple antigens for active immunization.....	286	discards	102
typhoid booster	97	Endowment Fund	98, 150, 316
Index, advertisers	54, 106, 154, 198, 255	exhibit	259
Industrial Medicine (see Public Health)		gifts and permanent loans.....	259
Infectious Diseases (see names of diseases, Public Health, Tuberculosis, Leprosy, Venereal Diseases, Diphtheria, Typhoid)		Honolulu County report.....	316
Insects: "kissing bug bites".....	121	hours	259
		index catalogue	103
J ohnson, H. M.		journal files	101, 260
intensive therapy of infectious syphilis.....	175	Kauai County report.....	316
penicillin therapy of impetigo contagiosa and its allied diseases	292	Library	98, 193, 195, 196, 197
Library appropriation H.T.M.A.....	313	Library appropriation H.T.M.A.....	313
Maui County report.....	315	Maui County report.....	315
microfilm	153	microfilm	153
new allergy journal.....	154	new drugs	154
new drugs	154	obstetrical abstracts	154
obstetrical abstracts	154	Osler, Sir William.....	103
Osler, Sir William.....	103	pamphlets and reprints.....	102
pamphlets and reprints.....	102	progress!	101
purchase of books.....	102	purchase of books.....	102
regulations	259	regulations	259
Selection Committee	102	Selection Committee	102
union catalogue	101	union catalogue	101
Journal		Leprosy: early diagnosis, as seen in Hawaii.....	111
Council report	317	Liver: primary carcinoma with hemorrhage.....	161
Editorial Board	201	M abel Smyth Building.....	150
report of committee.....	319	Council report	317
subscriptions	192, 195	MaLachlan, Margery, and Gage, Helen, letter to editor re nursing	287
K enny Treatment (see Poliomyelitis)		Maternal and Child Health.....	95
Kepner, R. D., preventive psychiatry in relation to the Territorial Hospital	7	Medical Service Plans (see also Economics)	
Kissing bug bites.....	121	Council meeting	312
L aboratories (see Clinico-Pathologic Comment, Pathology)		Council report	317
Lahey, F. H.....	194	Hawaii County report.....	192, 193, 314
Lam, J. W. (see Hartwell, A. S.)		H.M.S.A. physicians receive fund.....	98
Larsen, N. P.		Honolulu County report.....	97, 196
observations with penicillin.....	272	Kauai County report.....	315
discussion — Honolulu hospital survey.....	323	Maui County report.....	197, 315
Legal Medicine	196	plantation health plan.....	150
was it murder?, editorial.....	77	Territorial plan, editorial.....	170
modes of admission or commitment to the Territorial Hospital	237	Meetings (see Associations, Reports)	
		Membership	
		Hawaii County report.....	315
		Honolulu County report.....	316
		Maui County report.....	316
		new members	201
		Secretary's report	317

Mental Hygiene (see Psychiatry)

Milk Commission: Honolulu County report..... 316

Milnor, G. C., murine typhus fever and pregnancy..... 275

Molyneux, A. V., report breakfast round table..... 323

Mouritz, A. A. St. M., obituary..... 202

Neuropsychiatric Comment

 announcement 170

 modes of admission or commitment to the Territorial Hospital 237

 the rise and fall of medical neurology..... 295

 twentieth century psychiatry..... 185

Notes and News.....51, 105, 201

Novocaine injection for low back strain..... 133

Nursing (see also Hospitals)

 letter to editor..... 287

 nurse recruiting program..... 146

 nurse shortage150, 196, 314

 survey, Hawaii County..... 192

 the bedside nurse..... 169

Obituaries

 Baldwin, W. D..... 106

 Mouritz, A. A. St. M..... 202

 Schattenburg, O. L..... 105

Obstetrics (see also Gynecology)

 approval laboratories perform pre-natal serologic tests 91

 EMIC program127, 230

 management of labor in a patient with diabetes mellitus 291

 Maternal and Child Health..... 95

 murine typhus fever and pregnancy..... 275

 pregnant women in industry..... 197

 prematurity 321

 rupture of the uterus..... 164

Officers

 election H.T.M.A. 320

 listed62, 209

 Hawaii County elected 1944-1945..... 195

 Maui County elected 1944-1945..... 197

Onstott, R. H., discussion Honolulu hospital survey..... 323

Orenstein, A., Hawaii County report..... 149

Orthopedics: novocaine injection for low back strain... 133

Ovary: cystic states..... 137

Pancreas: multilocular pseudomucinous cystadenoma... 67

Pathology (see Clinico-Pathologic Comment)

Patterson, H. M., Weil's disease..... 213

Patterson, W. B.

 bacillary dysentery 222

 management of labor in a patient with diabetes mellitus 291

 Maui County reports.....95, 149, 197

 reactions following the readministration of the sulfonamide drugs with a report of two cases..... 81

Penicillin

 editorial 229

 Honolulu County report..... 196

 observations of its use..... 272

 in syphilis 176

 therapy of impetigo contagiosa and its allied diseases 292

Pertussis (see Immunization)

 Hawaii County report..... 314

Pilonidal cysts 85

Pinkerton, F. J.

 report delegate A.M.A..... 51

 discussion Honolulu hospital survey..... 322

Plague

 Commission, Hawaii County.....196, 314

 Sulfadiazine for early bubonic plague..... 230

Plantation Medicine (see Medical Service Plans)

Poliomyelitis

 epidemic of 247

 epidemiology of 29

 in Hawaii 29

 Hawaii County report..... 314

 observations in Honolulu and on the mainland..... 21

 Sister Kenny 22

 the Honolulu emergency poliomyelitis hospital..... 17

 training personnel in Kenny treatment..... 17

Post War (see War)

Procurement and Assignment (see War)

Progress in Internal Medicine

 epidemiology of poliomyelitis..... 29

 reactions following the readministration of the sulfonamide drugs 81

Psychiatry (see also Neuropsychiatric Comment)

 child guidance clinic.....321, 323

 Kauai County report..... 316

 Mental Hygiene Society..... 191

 preventive psychiatry in relation to the Territorial Hospital 7

 psychiatric facilities, editorial..... 169

 psychiatric unit Queen's Hospital.....187, 193

 report of committee..... 318

 Territorial Hospital: proposed new unit..... 188

Public Health (see also Infectious Diseases, Epidemiology, Immunization)

 approval of laboratories to perform pre-natal serologic tests 91

 dermatitis from shorts..... 177

 foodhandlers examinations97, 149, 191, 192

 Hawaii County report..... 314

 industrial hygiene in Hawaii..... 123

 Maternal and Child Health.....95, 318, 321

Maui County report.....	315	multilocular pseudomucinous cystadenoma of the pancreas	67
medical advisory committees.....	318, 321	pilonidal cysts	85
pregnant women in industry.....	197, 317	primary carcinoma of liver with hemorrhage.....	161
transmission of gonorrhea through buccal coitus.....	176	rupture of uterus.....	164
x-ray indigent non-plantation	313	sexual sterilization	65
		transfusion therapy in surgery.....	277
		transthoracic subtotal gastrectomy for benign ulcer of the stomach.....	33
R ecent Advances in Surgery		Syphilis (see Venereal Diseases)	
pilonidal cysts	85		
transthoracic subtotal gastrectomy for benign ulcer of the stomach.....	33	T ilden, I. L.	
Reports		the Rh factor.....	39
A.M.A. delegate	51	cystic states of the ovary.....	137
county societies		Transmission of gonorrhea through buccal coitus.....	176
Hawaii	95, 149, 191, 254, 314	Tuberculosis	
Honolulu	97, 149, 196, 251, 316	foodhandlers examinations	97, 149, 191, 192
Kauai	315	Hawaii County report.....	314
Maui	95, 149, 197, 255, 315	hospitalization of tuberculosis patients.....	145
emergency medical services.....	145, 247	shortage of tuberculosis hospital beds on Oahu.....	45
H.T.M.A., transactions of 54th annual meeting.....	311	tuberculin testing Dept. of Public Instruction.....	97
Resolutions		world planning for tuberculosis control.....	45
H. H. Walker.....	286	x-ray	96
hospital staffs physicians.....	149	x-ray indigent non-plantation patients.....	313
Rh factor: its clinical importance.....	39	Typhoid	
S chattenburg, O. Lee, obituary.....	105	booster shots	95, 195, 314
Schramm, F. L.		Council report	318
dermatitis from shorts.....	177	Honolulu County report.....	97
industrial hygiene in Hawaii.....	123	Maui County report.....	197
Shanahan, W. B.		Typhus fever, murine, in pregnancy.....	275
psychiatric unit, Queen's Hospital.....	187	V ance, T. B., Waimano Home.....	241
discussion — child guidance clinic.....	323	Venereal Diseases	
Sloan, N. R., early diagnosis of leprosy as seen in Hawaii	111	approval laboratories perform pre-natal serologic tests	91
Socialized Medicine (see Economics, medical and Legislation)		intensive therapy of infectious syphilis.....	175
Stephens, E. A., modes of admission or commitment to the Territorial Hospital.....	237	syphilis in Hawaii, editorial.....	229
Sterilization		transmission of gonorrhea through buccal coitus.....	176
Honolulu County report.....	97	Von Asch, G., Maui County report.....	255
sexual sterilization	65	W alker, H. H.	
Stewart, S. F., observations on poliomyelitis in Honolulu and on the mainland.....	21	shortage of tuberculosis hospital beds on Oahu	45
Stomach: transthoracic gastrectomy for benign ulcer.....	33	anniversary congratulations, editorial	281
Sulfa drugs		War	
reactions following the readministration of the sulfonamide drugs	81	emergency medical services	
sulfadiazine for early bubonic plague.....	230	budget	145
Surgery		epidemic of poliomyelitis.....	247
anesthesia in a small hospital.....	159	Honolulu County report.....	316
early ambulation	269	hospitalization of tuberculosis patients.....	145
Hawaii Chapter American College of Surgeons.....	201	management of war gas casualties	146
		maneuvers	145

Maui County report.....	315	Wilbar, C. L., discussion — child guidance clinic.....	323
mobilization of hospital personnel.....	145	Wishik, S. M.	
need for increased beds for tuberculosis....	247	the Honolulu Emergency Poliomyelitis Hospital.....	17
nurse recruiting program.....	146	discussion — child guidance clinic.....	323
plans and training of emergency medical service, future policy.....	248	Withington, Paul, discussion, Honolulu hospital survey	323
Sacred Hearts	247	Witlin, Bernard, approval of laboratories for pre-natal serologic tests	91
transfer of O.C.D. hospital personnel.....	145	(see also Allison).....	176
transfer of outside island O.C.D. hospitals to Army	247		
Wahiawa Hospital	248		
post war planning — hospitals	78		
Procurement and Assignment	128, 194, 196, 313, 314, 317, 318	Yamauchi, S., multilocular pseudomucinous cystade- noma of pancreas.....	67
Weil's disease	213	Young, C. T., primary carcinoma of liver with hemor- rhage	161
Hawaii County report.....	314		

INDEX TO ADVERTISERS

Abbott Laboratories	293	Mercke	330
American Factors, Ltd.....	294	Mead Johnson & Company.....	Back cover
Burroughs Wellcome & Co., Inc.....	299	Parke, Davis & Company.....	264
Cutter Laboratories	266	Phillip Morris & Co., Ltd., Inc.....	283
Don Baxter Co.....	290	Ruth Ann Aust.....	297
Eli Lilly & Company.....	268	S.M.A. Corporation	Second cover
Galen Company	300	Upjohn	263
Hawaii Medical Service Association.....	288	Wander Co.	284
Julius Schmid, Inc.....	309	Watkins Printery	329
Lederle Laboratories, Inc.....	298	Winthrop Chemical Co.....	289
Marcella Cosmetics, Inc.....	308	Wyeth & Brother, Incorporated.....	Third cover
McArthur & Summers Pharmacy.....	310		



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